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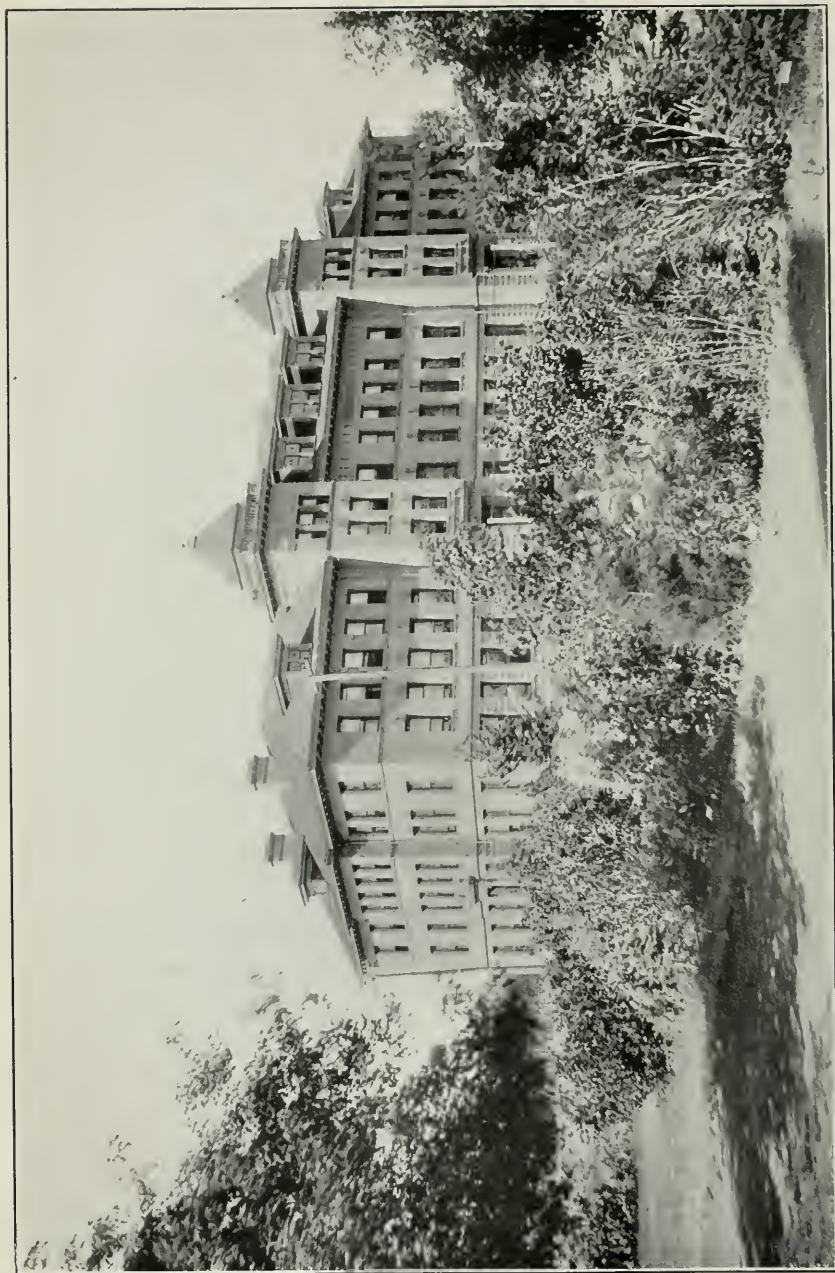
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From photograph loaned by U. S. Department of Agriculture.

Ceres Hall, the Woman's Building at the North Dakota Agricultural College.

THE Journal of Home Economics

VOL. IV.

FEBRUARY, 1912

No. 1

LAKE PLACID MEETING OF AMERICAN HOME ECONOMICS ASSOCIATION.

INSTITUTION ECONOMICS SECTION.

The meeting of the Administration Section of the American Home Economics Association was held at Lake Placid, June 27-July 1, 1911. The program and a brief report of the meeting was given in the October number of the JOURNAL OF HOME ECONOMICS while in this number will be given a brief report of the discussions and several papers presented at the meeting.

It was fitting that the first session be opened with a tribute to Mrs. Ellen H. Richards. Mrs. Melvil Dewey, chairman, in calling the meeting to order stated that while this was the second annual gathering of the Administration Section it was the tenth conference on Home Economics which has met at the Lake Placid Club. During the ten years existence of the Lake Placid Conference two of its annual meetings were by special invitation held elsewhere, in 1903 in Boston in joint session with the Manual Training Section of the National Education Association and in 1908 by request at Chautauqua.

Mrs. Dewey said: "In looking back over these years we miss today one who has been our leader from the beginning, to whom is due the wise guidance and unusual progress which has marked this work. The joy of service was hers, the highest ambition which inspires great discoveries in any field. With her, 'achievement was but the starting point to new endeavor.' Her ideal of happiness was well defined by Mme. de Stael as 'constant occupation upon some desirable object with a continued sense of progress towards its attainment.' The key note of unselfish service which she struck is sounding today. Those

who knew her personally can never forget it and by its inspiration we may go on with continued and increasing progress."

In the address of welcome by Mr. Melvil Dewey there was emphasized the present day need for an exchange of the results of experience and experiment in the effort toward efficiency in work involving the care of large groups of persons and the part which the Administration Section of the American Home Economics Association could play in working out this problem.

The following papers were read and discussed at the several sessions:

FOOD ADMINISTRATION: PLAN, EQUIPMENT, COST, AND ORGANIZATION OF KITCHENS AND DINING ROOMS.

ANNIE DEWEY.

Lake Placid Club.

The problem of feeding large numbers successfully requires that the administrative plant be specially adapted to the type of institution, numbers to be fed, kind of menu required, length of meal hours, facilities for keeping food warm, and funds available, and also to the possibilities for growth.

Institutions may be divided roughly into five types: (1) Educational—schools and colleges; (2) philanthropic—asylums, homes, hospitals, orphanages, sanitariums, settlements; (3) commercial—hotels, summer resorts, restaurants, lunch and tea rooms; (4) social—clubs, settlements, camps; and (5) government, state, county, municipal—military and naval barracks, almshouses, prisons, houses of detention, reformatories.

A definite plan of a working plant of the social type, a private club, equipped with modern machinery and labor-saving devices to care for 200 guests and about 65 employees, is taken as a working basis. The menu, meal hours, and general conditions stand about midway between college dining rooms and elaborate hotels. The space devoted to food preparation is 40 by 80 feet. (See plan on page 7.)

The kitchen is 30 by 40 feet, one story, with seven windows on each side and a lantern overhead having the same number of windows, giving the best possible light and ventilation. The floor is of comb grained Georgia pine finished with one coat of filler and one coat of

boiled linseed oil; both walls and ceiling are Georgia pine, finished with varnish which can be wiped off easily or washed if necessary. A house open only for a short summer season of three months does not justify tile and expensive construction. The entrance platform, nearly 8 feet above ground, has side railings high enough to conceal ash and garbage cans, with space underneath for fuel. The chimney has a large ventilating flue for carrying off cooking odors, with a hood 28 feet long covering three fire ranges, a charcoal broiler, two kettles for stock and soup, and two vegetable steamers. Other equipment includes the cook's tables with a bain marie and a 16-foot sauce pan rack overhead, a pot sink with drain boards, a plate warmer, a dish washer with scraping and dish tables, a tray and bread tables, an automatic egg boiler with three compartments, and a carving or steam table. The cost of these without steam fittings and connections is \$1880.

The pastry room is 20 by 22 feet and contains two working tables, a griddle range, an oven, a pudding steamer, a copper kettle, a sink, a refrigerator, a creamer, and a long counter.

The serving room is 20 by 22 feet and has two glass and silver sinks, with long drain boards, a table, coffee urns, and a cup and roll warmer.

The vegetable room, 18 by 20 feet, contains an ice chopping box, a fish box, a sink, a table and dumb waiter for serving meals for maids on the floor below, and stairways.

The butcher shop, 20 by 22 feet, has a sink, a meat block, a meat bench, a grocery and two cold storage rooms 8 by 14 feet with ice bunkers overhead, filled from an ice house platform and pulleys, which connect with the rear of the building.

The equipment of these four rooms cost about \$2000, the insulated cold storage and bunker rooms at \$800 being the most expensive item. A 12-horse power upright tubular boiler with 15 pounds steam pressure, at \$200, with all expenses of delivering, setting up, steam and return connections, brings the machinery equipment to \$4755.

Small utensils considered necessary make a list of 152 items and 920 separate articles counting dozens and different sizes, costing \$1137, a total of \$5892. The complete inventory of such utensils in a college kitchen for 130 students numbers 169 items with 622 separate articles. Both include scrubbing brushes, brooms, pails, and various cleaning apparatus. A complete kitchen equipment adapted to 500 guests would cost not less than \$10,000.

Organization required for 200 guests and 65 employees.

A. Kitchen organization.

EMPLOYEES.	WAGES BY MONTH.	
	Men.	Women.
Chef	\$100	
First assistant cook	65	
Second assistant cook	50	
Pastry cook		\$50
Pastry assistant		25
Pastry helper		18
Vegetable cook (also cereals, cocoa, salads)		35
Vegetable helper		25
Pot washer	30	
Dish washer, for machine	25	
One dish wiper		20
One dish wiper		14
General assistant	30	
Cleaner		30
Kitchen housekeeper		25
Total		\$542

B. Dining room organization.

Head waitress	\$35
Two tray boys	14-18 each
Twenty-five to thirty waitresses	14-18 each

COMPARATIVE STUDY OF INSTITUTIONS.

A blank of 70 questions was mailed to about 130 institutions of different types and sizes. Twenty-nine have been tabulated under the four groups of colleges, lunch rooms, hospitals and state institutions, and summer resorts. While much more data is desirable, some interesting results are indicated, only a few of which can be touched here.

Sizes of kitchens.—The smallest is only 16 by 20 feet, or 320 square feet where the cooking for 225 students is done. The largest is 50 by 55 feet, giving 2750 square feet for 450 guests, the average for all groups being 2273 square feet for cooking purposes alone. Adding the pastry, serving rooms, and all space given, they run from 1380 to 3936 square feet. All have live steam and machinery equipment averaging from one-half to two-thirds the amount found necessary

in hotel types. In colleges the numbers fed from one kitchen vary from 100 to 740. In some state institutions where over 2000 are fed, they are broken into several groups with separate kitchens and some have one large kitchen with a number of smaller dining rooms.

Cooks.—In one college two women and one man (baker) do the cooking for 240 students, but the average in all the colleges given is 1 cook to 67 students. In lunch rooms there is 1 to 84, in state hospitals 1 to 200, in summer hotels 1 to 40 guests. Counting all kitchen helpers, in colleges there is 1 to 25, lunch rooms 1 to 38. In state institutions, patients and inmates do the work without wages; in resorts there is 1 to 20 guests. Counting care of rooms and all employees, the colleges without student labor average 1 servant to 10 students but in the summer resorts there is 1 servant to $1\frac{1}{2}$ guests. City hotels usually average one employee to each 2 or $2\frac{1}{2}$ guests, to which must be added the care of grounds, livery, boats, golf, and various other summer expenses for resorts.

Wages of cooks.—College chefs receive from \$21 a month for a woman to \$85 for a man, the average being \$54. Lunch rooms range from \$35 to \$52, the average being \$45; state institutions from \$50 to \$93.75, average \$67.25; resorts from \$75 to \$200, average \$125.

Wages of waitresses.—These vary from \$14 to \$21 a month. In some places all receive a uniform price, in others there is promotion for length of service and efficiency.

Uniforms.—These are almost universal among men cooks and their laundry is done free by the institution. Most waitresses provide their own and are responsible for their laundry but in a few cases the washing is done free and they may either iron themselves or pay half price to have it done.

Interchange of labor.—Between departments this is only occasional. In colleges one waitress serves from 8 to 40 students, in resorts from 6 to 8. One large hotel has for years made a success in dividing its 75 waitresses into three groups, 25 doing all dining room and side work, 25 doing laundry work, and 25 chamber work, the latter positions being most sought as yielding tips and fees from two sets of guests.

Dining room equipment and cost.—In the private Club, mission oak furniture, tables with polished tops, chairs, side stands, and trays cost \$810 for 200 people. China (English Maddocks) costs \$710, silver \$480, glass \$250, and linen \$830, including table cloths, napkins, felt pads, center pieces and stand covers. This gives a total of \$3080 or \$15.40 per guest. Where polished oak tables are used with doilies

only, no cloths, there is a difference of \$1.50 per guest, or \$300 investment.

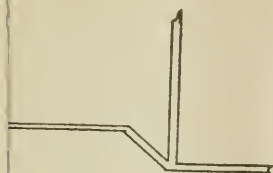
The complete inventory of a well equipped college for 130 students gave \$16.50 per capita. They use a more expensive silver and china (Greenwood) but have less expensive linen, changing twice a week instead of daily. The two equipments for the same number of people come to \$2002 for the Club and \$2145 for the college, the latter using soup tureens and silver ladles additional. These figures do not cover window shades, draperies, fire place fittings, plants, or ornaments. A fair average for table furnishings alone, of good grade, is \$16 per capita.

Servants' dining room equipment.—In the Club this costs \$4.75 each and \$5.45 in the college.

Table linen.—The private Club, changing once daily, allows 3 cloths to a table and 4 napkins to a guest at \$4.50 a dozen. With a maximum of 868 guests in August, the average is about 600 for 100 days, including the 4 club houses. The difference between fresh napkins every meal and one daily, under these conditions, has been translated into dollars as \$2572.

Laundry charges for flat work are variously estimated from 50 cents per 100 for small napkins alone with seven to ten cents each for table cloths, to from \$1.50 to \$2 per 100 for both together. With summer use only and a good grade of linen, about $\frac{1}{3}$ disappears each year. Some city hotels running all the year have standing orders for complete new equipment annually, but much depends on the per capita allowance and the kind of mangle work done. This machine is well named, but though ruinous to linen hotel men claim that it is cheaper to replace each year than to pay for hand work.

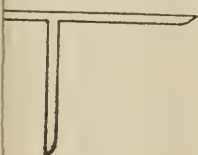
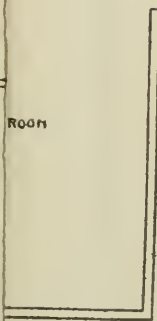
Seating capacity of dining rooms.—In very large rooms with long, narrow tables seating as high as 22 in institutions, 12 square feet per person will answer. In college dining halls, averaging 14 at table, 14 square feet is the average. One lunch room gives 16 square feet, but the resorts require 18 as a minimum. With round tables seating 4, 6, and 8, the smallest which can be used with comfort is 3 feet six inches in diameter, while 4 feet is much better, with 4 feet 6 inches for 6 persons and 5 feet diameter for 8. This is the largest number one waitress can serve well with a varied menu. Where dining space for 200 is divided into 4 separate rooms, with fire places, broken lines and many small tables, 20 square feet per capita is desirable but 18 will answer where tables are fitted to the spaces to the best advantage.



Room



Room



Raw food per capita cost.—In reckoning per capita, figures are almost meaningless unless methods are known. The usual hotel rule is to divide the total food cost by the number of paying guests, regardless of the number of employees. Unless separate kitchens, cooks, and food accounts are kept, it is very difficult to separate them. In the private Club, those employed as chambermaids, livery, office, golf, etc., are charged to their own departments and only those directly engaged in food work are counted in food costs. Figures so far as given show college tables running from $6\frac{1}{2}$ to 31 cents a day per student. Some state institutions are limited to from $6\frac{1}{2}$ to $7\frac{1}{2}$ cents a day for inmates but with a more liberal menu for physicians, nurses, and the general staff average 16 cents a day. One college giving very careful data spends 6.39 cents a meal for food, or 19.17 cents a day, and 6 cents for wages. A family boarding house averages 21 cents a day for food. The Club averages \$1.02 with large August numbers, and \$1.30 early and late with fewer guests.

Wages per capita.—These vary from 6 to 12 cents per day in colleges. Both food and wages are much lower in Canada than in the states. In the resorts, wages paid food employees in actual money are 30.3 cents per capita and including living expenses, which should always be reckoned, 56.4 cents. With smaller numbers 37 cents in money and 69 cents adding board and rooms is given.

Fixed charges per capita.—These, including rent, fuel, light, water, and supplies are 54 and 60 cents each at different seasons.

Waste.—This is noted as being specially heavy in kitchens and serving rooms, banquets and special dinners, trays sent to sick rooms, lunching of waitresses, surgical supplies in hospitals, in laundries, sewing rooms, and in the breakage and nicking of dishes. Inspection, supervision, and careful watchfulness control to a limited extent.

Best working units for efficiency.—There is no agreement as to the units of best size in feeding large numbers, or at what point it is best to introduce men cooks and steam with machinery equipment. Some prefer women as chefs with strong boys to lift. From 100 to 200 seems economically the worst point. Under 100 the heavy expense of steam equipment is hardly justified and not till over 200 will it pay over fixed charges. In pastry work women have a dainty touch which is seldom attained by men. Suggestions vary all the way from 50 to 400 as the best unit and this whole question invites careful study and investigation.

Scientific management.—As yet little has been done with shop

methods to increase efficiency in institutions or even in home house-keeping. An estimate of the difference in time between two methods of opening beds at night in the Club showed that 104 working days, of 8 hours each, were worse than wasted each season by the one which required that spreads be taken off and folded in creases at night, clothing folded over as in hospitals, and spread replaced in the morning, causing more wear and more frequent laundry; yet the difference was only one minute on each bed.

One strong impression made by this comparative study is the need of standards, not only in methods of keeping accounts that they may be intelligible, but in careful estimates of size, equipment, organization, buying of all kinds of supplies, and the many details and directions for work. Factories where this is done lead the world in successful results. In certain watches and automobiles any part of any machine can be replaced accurately in the shortest possible time. Things fit; there is no waste in adjusting parts. It is the secret of library efficiency today. While some things may vary with local conditions, there is no question that standardizing is the largest factor towards efficiency in all so-called scientific management. In the individual home the few minutes additional time required to do things by one method rather than another is scarcely noticed, yet the sum of all these moments counts.

The startling figures revealed by fixed charges and the growing luxury and expense of hotel living make this study of large numbers imperative. If the inmates of the state hospital where 2200 are fed were cared for as in the summer resorts, it would cost the state \$1,312,905 annually for the food side alone, (\$819,060 raw food, \$60,225 service, \$433,620 fixed charges).

Not only in plans, the best materials, the construction and the equipment of institutions is there great need of more definite information, but in lists of supplies, all kinds of systemized blanks, methods of accounting, graphic charts, duties and directions for employees, ratios, proportions, and menu making, is there a wide field for investigation and original research.

Discussion of Mrs. Dewey's paper:

The human machine has not received the attention it should. It is difficult to measure the efficiency or inefficiency of per capita-costs in institutions since it depends on whether they are places of punish-

ment or places to reform and to improve the inmates. They must be translated into terms of flesh and blood, or character. We need a measure for human efficiency, as horse-power in machinery; what Mrs. Richards, in an address to students, emphasized: "Wanted: a unit of man power."

Efficiency in the administration of institution kitchens depends largely on the machinery equipment, while the expense is so enormous as to be prohibitive in many cases. The thorough equipment of the kitchen for 200 with steam fittings and power, together with small utensils needed for a moderate menu such as the Club offers, would require not less than \$6000. The contract price for a hospital kitchen equipment for 400, calling for the best modern labor-saving devices, steel tables, plate glass, and the best fittings was recently quoted as \$20,000.

The point at which it pays to introduce live steam, machinery, and men cooks, is yet to be proved. Under 100 it seems impracticable. With 200 the fixed charges are very heavy, while with 500 or more the individual touch or home flavor of cooking is hopelessly lost except for *a la carte*, cooked to order specialties.

THE LUNCHROOM IN BUSINESS.

GERTRUDE SANBORN.

Nasmith Company, Toronto, Canada.

The topic which I have taken is the lunch room in business and I will discuss it from the standpoint of experience, particularly that gained in managing such an enterprise for a large baking firm in Toronto. This is a product of city conditions, since it is only when a town has grown beyond the limits within which business people can go home for lunch, that it needs down-town lunch rooms.

The city lunch room is a place in the business district which serves a simple meal for business men and women who have not too much time or cash to spend on it; yet who want quick service and good, plain food at a reasonable price in a clean, well-ventilated place. The lunch room may or may not serve breakfast or supper, but the lunch or noon meal is its chief business. It is in quite a different class from the tea room, the scale of prices being much lower, and there is little competition between them, although there is more or less interchange of customers.

There is a large group of lunch rooms which are not subject to ordinary business conditions or are so to only a limited extent, such as the Y. W. C. A. and Y. M. C. A. lunch rooms, which especially in the West and South are doing a very good work. They are expected to pay their own expenses at least, and in many cases do make enough profit to contribute to the support of other departments, but in case they fail to make expenses they may be carried along for the sake of the good they do. In quite another class is the lunch room which is entirely self supporting on the same basis as any other business, as a machine shop or candy factory, and which must pay its own expenses and provide some surplus for the future if it is to continue to exist. If the commercial lunch room is trying to serve the public in the best possible way, not with that as a purpose but as a business policy, it is always in close competition with lunch rooms of lower standard. Since the average customer cares more about a difference of five cents in the daily cost of his lunch than he does about ideals and theories, the lunch room which is not troubled with these has a certain superficial advantage.

The need in public eating places everywhere is for good, plain, home-like cooking such as people can enjoy who have to be careful about what they eat; nourishing soups, not too highly seasoned, fresh vegetables and fruits carefully prepared, a variety of salads, simple made-up dishes and desserts. The person who wants to make up a lunch without meat, not because of being vegetarian in theory, but for the sake of a balanced diet, or merely as a matter of taste, finds that there are few places to get it. Such simple home-like articles as scalloped fish, spinach and egg salad, meat and potato cakes, creamed eggs, do not belong to the usual chef's menu, but the public likes them if they are good. In the kitchen of the ordinary public lunch room there is not enough help to prepare things carefully, and the chef has not as high a standard as the housekeeper at home. Often he can do more expensive and elaborate things better, but he is not interested in doing as well as they can be done the plain, simple things for which there is need in the lunch room. The result is that low quality, cheaper materials and methods, and high seasoning are substituted for economy.

A short time ago I was in one of our kitchens where we had just started to train the women to use recipes. The cook who was making bread and butter pudding was greasing the individual moulds. I looked at the fat she was using and found it was only fit for soap grease.

When I told her that we would not use that, and asked her if she would think the grease was fit to use if she were making a pudding at home, she said that indeed she would not. It has been so long an accepted thing that in a public kitchen the proper thing to do is to pass off a poor thing for a good one whenever you can bluff the public into taking it, that it will take some time to correct this idea. It needs more conscience on the part of the people who do the cooking, more training for the management, and more discrimination on the part of the public as to what is genuinely good.

When competition is to be made on the ground of quality, there is need for every kind of economy, and economy means scientific management. Since every price on the lunch room menu is based on the cost of the order, the reckoning of costs in the food is of the greatest importance. The size and weight of the order needs to be regulated, and the cost reckoned again every time the market price of the material changes. Whenever it is possible to make up in individual orders it is a help toward uniformity in the cost and size of the order. The matter of recipes and formulas is an important one in the lunch room, for the reason that the public is more or less regular in its demands and expects any one item to be the same whenever it comes on the menu. If to-day macaroni and cheese has tomato in it and next week there is a new cook who makes it up plain, if the rice pudding to-day is made up with a custard and next time has raisins in it, a regular customer will stop ordering it because he does not know what he is going to get. If he is paying fifteen cents for a certain article he wants that very article every time. The average business man or woman reckons on paying fifteen, twenty, or thirty cents for a lunch and everything must be of good value and always alike. This accounts for the popularity of places which display their orders either on the cafeteria plan or on a counter system.

In reckoning costs, the intelligent co-operation of the people who do the cooking is required; and herein is the chief difference between the old style lunch room and the new. In the former, the kitchen is in the hands of a chef or head cook who makes the menu and orders, and plans what to do with the left-overs. He is chiefly responsible for the food costs and the other cooks look to him as head. The obvious disadvantage of this is that it gives a very important position to a person who is often unreliable, and leaves a very weak kitchen when he goes.

In the organization which I have found more satisfactory for most

lunch rooms, the food is in charge of a woman, either trained or experienced. She is head of the department if the lunch room is large enough to have separate departments, or in a small lunch room is manager as well. She plans the menus and orders, tells the cooks what to do, and teaches them when necessary; but the cooking is done by different cooks, each of whom is responsible for her own work to the food director. This organization is more expensive in help, but makes up by what it saves in material.

This plan makes the kitchen less weak when anyone stays out, makes it possible to use formulas and to keep costs uniform, and places the strength of organization in the system instead of in any one person. The workers nearly all have to be trained, beginning with teaching them how to measure with a cup and table spoon; and a good deal of the training will be wasted by their leaving. They have to be constantly looked after because they are likely to do foolish things without knowing it, as last week when a new girl was making cottage pudding. When the sample, baked on suspicion, came out it was quite flat and solid. It then appeared that she had used cream of tartar instead of baking powder; the responsible head had to be called on to reckon how to make up the other amounts in proportion to the cream of tartar, and finally brought it out right. The untrained cook is helpless in an emergency like this, because she does not know enough theory to correct a mistake, and has no experience to fall back on. She therefore has to rely entirely on her recipes and on the head of the department.

The recipes have to be made up in different quantities and if a quantity is required which is not on the formula, the head of the department must make it up. I have seldom found a cook who could multiply or divide a formula and keep it in proportion all through; and they do not want the responsibility of it.

The process of changing a kitchen which has been in charge of a chef to an organization of several women cooks using recipes, is a most interesting one, and for the time being, exciting. For a woman who has been working as cook's helper with no responsibility but to do what she was told, it is a great event to be allowed to make steamed fig pudding for a hundred people, and by simply following the recipe and directions have it come out just as good as if the chef made it. The women take an active pride and interest in their work when they are transformed from cook's helpers into cooks, which makes the experiment well worth trying.

The lunch room plan is so simple that it lends itself easily to any system of working out cost percentages, but I have found that most practical managers do not make as much use of figures as they could. Even in a small lunch room where there is regular book-keeping done, the facts are so few and so simple that the manager can get very helpful results by a little figuring, but unless she understands how to work out the cost percentages she will not be able to control them. When the question comes up: If the cost of an order of tomato soup is two cents what should be the price of the order?—the whole system of cost percentages is involved. It is hard for the inexperienced person to see that every five cents worth of food which is brought into the place must pay its share of the wage and rent and fuel; and that unless the cost is kept in the right proportion to price on every order, there is nothing that can make it come out right.

The three most important items of cost in the lunch room are food, wages, and general expense, and while these vary with different systems of serving and different sections of the country, it is possible in each case to arrive at a standard with which results can be compared. It might be supposed that any business would have some system of working out its costs, but I find many small lunch rooms which have none. I have in mind a tea room which had been open about six months when I was talking with the manager and asked her what kind of a cost system they had. She did not know what any of their costs were, and they let the bank do their book-keeping. Neither of the two managers had drawn any salary, but they had paid off a part of the money which they had borrowed to equip the place, and she thought they were doing well. I think they were too, but it was partly a matter of luck and if they had not done well they would not know why.

In most cases a full report of cost percentages can well be made at the end of every month or quarter. For a shorter period of time, if wages are paid weekly the wage percentage can be reckoned on the receipts of the week and this sub-divided into the departments of cleaning, serving, dining room, and kitchen to see where the variation comes from the weekly pay roll. If the percentages are reckoned only at the end of the month, it is too late then to have any effect on them, but if they are taken weekly, even when the figures are only approximate they can be better controlled. When there are several branches or departments in which conditions are similar, a sub-division of food material into its large items, such as meat, fish, butter,

eggs, or canned goods, can be made and a normal percentage found for each. In four branches of one business where we made a comparison, the averages for the meat item were 6, 7, 9, and 10; the higher average of the last two being accounted for by a higher average check of one cent. The average check runs so regularly the same that a variation of one cent in the daily average makes a considerable difference in costs.

In one lunch room where I took charge, the percentage of material was high, about ten per cent above the normal average which I had known in similar lunch rooms; the wage percentage was low; and the place was not paying its expenses. In the effort to economize, the wages had been reduced at the expense of quality in food and service, with the result that the place was run down. To correct this it was necessary to raise the wage percentage (but not the wages) above the normal in order to make the food and quality of service an attraction. When this was done the food percentage was reduced and the receipts of the place increased so that it paid expenses. The total of the wage and food percentages was then the same as when the food percentage was too high and the wage percentage too low, but the increased receipts made a reduction in the percentage of general expense (this item being comparatively a fixed amount) so that it left a small margin of profit. It is a common weakness of the woman who is a good practical manager that she uses up her energy in doing the day's work, and does not realize that only by taking time to find out the value of it and analyze the weak spots can she control the results.

In comparing different parts of the country where I have been in lunch room work (in Boston, San Antonio, Texas, and Toronto) there are some interesting points of difference. Compared with Boston, the conditions in San Antonio and Toronto are alike in that wages are lower, hours longer, and help inclined to slower speed. While in Boston the help is chiefly Irish, in Toronto the workers are either Scotch or English who have lately come over, often from gentlemen's service, and they are very easy to handle. The better positions are held by Canadians who may have come as waitresses and been promoted to other positions such as that of cashier or branch manager. The general tendency is to prefer easy hours and fair pay rather than the more strenuous life; they are on the whole more contented, have less push, and are less eager for chances to get ahead than in the United States. Waitresses often come into lunch room work from private family service by preference, although considering all

expenses it pays them much less. The comparatively easy schedule of hours, with social independence and freedom of time outside of stated hours, probably accounts for this. In Toronto, where the lunch rooms serve three meals in the day, serving breakfast at 7 and supper until 7:30, the hours are so arranged that they have every second afternoon off. This is worth a great deal from the standpoint of health and makes the work attractive.

In Toronto the influence of English cooking on the menu is very noticeable. Suet is much used in pastries; steamed fruit rolies, dumplings, and puddings made of suet, such dishes as deep fruit pies, marmalade roly, chicken and ham pie, steak and kidney pudding, are common on the menu. The Canadians like their cereal and custard puddings less rich than is the case in the United States; cream of tapioca and bread and butter pudding are made with less eggs and sugar. They take very large orders of porridge served in a soup plate, more tea and less coffee, more white bread and less wholewheat, and a great variety of buns, small pastries, and shortbreads. On the whole the diet includes more fats and less starches than for a similar group of people in New England. The relation between diet and temperament suggests that this may have something to do with the comparative lack of nervous prostration in Canada.

In reference to the question as to the place to be filled by trained women in the food business and manufactories, my experience has been to this effect, that women with training are without any question worth more than women who undertake the work without the knowledge thus gained.

Discussion of Miss Sanborn's paper:

In the discussion of Miss Sanborn's paper, which followed, Miss Arnold of Cornell University emphasized the need of trained intelligence in approaching the problem involved in feeding persons living on small incomes. In this connection, she made a brief report of a recent experiment at Cornell University in providing a balanced ration on a per capita expenditure of approximately eighteen to twenty cents per meal. The cafeteria system of service was used in this experiment and one of the most encouraging results was the interest shown by the students in the scientific side of the work. One man maintained a satisfactory degree of physical efficiency on an expenditure of from twelve to fifteen cents per meal. Miss Arnold indicated that a balanced ration at these prices is made possible only by using

meat substitutes, and that the largest problem to be met lies in finding sufficient variety in such substitutes. She added further that this experiment was conducted on a business basis and showed a satisfactory profit.

CONTROL OF INSECT PESTS IN INSTITUTIONS.

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Nature abhors a vacuum —be it neglected opportunity or even cessation from the "eternal vigilance" necessary to liberty, which in this instance stands for comparative freedom from insect pests. This is not mere pleasantry, it represents one of the fundamentals in the control of insects. The unused open well may be a mosquito breeder, yet water drawn daily therefrom in a bucket may render it innocuous so far as the production of these pests is concerned. The deserted city home may be a midsummer paradise for fleas; occupied, there is little opportunity for the pests to multiply. The rug in a living room may be exempt from injury, while the carpet in the parlor, opened only Sundays and on family feast or mourning days, may be ravaged by both clothes moths and carpet beetles. Numerous cracks and crevices or their absence in a dwelling are important factors in determining the prevalence of such pests as cockroaches, croton bugs, slides or silver fish, and even that small, brown, flattened, malodorous creature occasionally found in sleeping apartments. The point we would emphasize is that apparently insignificant factors are in reality vital, if insects are to be controlled. It frequently occurs that comparatively inexpensive modifications in methods may exert a marked influence on the development of insects.

We can hardly do better than to adopt a rough classification for the insects to be discussed and treat them under three heads; namely, fabric pests, food pests, and disease carriers, especially as measures adapted to the control of one species are frequently valuable in checking the depredations of associated forms.

The fabric pests in this country are represented by three clothes moths, known as the case-making clothes moth, the webbing or southern clothes moth, and the tapestry moth. The first named is the more common in New York State, and may be easily recognized in its destructive stage by the cylindrical case dragged around by the

small caterpillars as they move from place to place. The southern clothes moth differs from the preceding in that the caterpillar does not construct a case but lines its runways with fine silk. It is the more abundant and injurious pest in the latitude of Washington and feeds on a variety of animal substances, such as woolens, hair, feathers, and fur. The tapestry moth is rare in this country, considerably larger than either of the preceding, and displays a marked preference for heavier fabrics, such as carpets and horse blankets.

The carpet beetles are represented by two species—the Buffalo carpet beetle and the black carpet beetle. The destructive grubs of these two pests are readily distinguished, since that of the Buffalo carpet beetle is short, stout, and shaggy-haired, while the grub of the black carpet beetle is slender, round, and tapering to a tail of long hairs. The beetles are equally distinct. The Buffalo carpet beetle is stout, oval, less than one-eighth of an inch long and with black and white or yellowish white and red mottled wing covers, the red markings forming an irregular line with three lateral projections on each side down the middle of the back. The black carpet beetle is more slender, about three-sixteenths of an inch long, and of a uniform black or brownish color. Both of these beetles may be found about houses in late winter or early spring and are frequently brought into dwellings on flowers the latter part of May or early in June.

The destructive young of the clothes moths, and the carpet beetles as well, thrive best in undisturbed situations or, to be specific, in garments which are allowed to hang for weeks unmolested, in carpets rarely swept, or in other fabrics under similar conditions. The substitution of the frequently removed and easily cleaned rugs for carpets, is an important step in preventing injury. Carpets laid on tight floors are much less liable to injury than where numerous cracks afford secure retreats in time of danger. Tarred paper under a carpet has been frequently advised as a preventive and is certainly a serious barrier to the insects taking advantage of cracks and crevices in the floor.

It follows from the above that all clothes presses should be thoroughly cleaned from time to time, especially where these pests are known to be abundant. The garments should be removed, aired, thoroughly brushed, and care taken to destroy any larvae which may not have been dislodged by this treatment. It is a very poor plan to have in the attic or some unused part of the house, miscellaneous woolens or other materials in which these pests can breed unrestricted, as such places

are likely to serve as centers for the infestation of more valuable articles. Spraying with benzine or naphtha two or three times during warm weather is recommended for the purpose of preventing injury to cloth-covered furniture, cloth-lined carriages, and similar articles in storage or unused for extended periods. Valuable furs, etc., are frequently deposited with storage companies, some of which make a practice of keeping the temperature at about 40° Fahrenheit. This is sufficiently low so that insects, even if present, will remain dormant and therefore harmless. Woolens and furs may be stored in tight pasteboard boxes with the covers sealed firmly with strips of gummed paper. This is thoroughly effective, provided the articles are free from the pests before being placed in such a box and the sealing is absolutely tight. Recent experiments have shown that insects of this class can not endure, for any length of time, a temperature above 120° Fahrenheit. This might be taken advantage of in some cases to free fabrics from infestation prior to storage. It would not be necessary to maintain the above named temperature for more than twenty minutes, provided that this was the minimum.

The silver fish, bristle tail, or fish moth, sometimes known as the slide, thrives best in places where there is comparatively little disturbance, and is therefore rarely numerous in dwellings having few crevices and no store room where articles are allowed to remain undisturbed for months or even years at a time. Ordinarily dusting the haunts of this insect with fresh pyrethrum powder, followed by thorough cleaning, is sufficient to prevent material injury. It is stated that this pest can be controlled by slipping into its haunts pieces of paper liberally treated with a thick, boiled, starchy, preferably nitrogenous paste poisoned with arsenic. Extreme care should characterize the employment of such poisons about the house.

The next group of insects comprises a number of diverse forms, noteworthy largely on account of their depredations upon various food products. Ants of various species may be ranked as the most persistent and annoying under certain conditions at least. The little red ant, only about one-sixteenth of an inch long, is particularly troublesome, since its small size enables it to enter almost any receptacle not hermetically sealed. This little pest is also very prolific and occasionally literally overruns buildings to the serious discomfort of the inhabitants. The small, black ant may also be abundant in houses and occasionally the large, black ant or carpenter ant is exceed-

ingly numerous. This latter insect establishes itself in the timbers and has been known to cause serious injury to the dwelling itself.

The ants all live in colonies and the most obvious method of checking the trouble is to search for their nests and destroy the insects. This can be accomplished only by ascertaining the origin of the pests and is frequently impossible. It is certainly good policy to destroy ant nests in the vicinity of the house and in the lawn. This can be done in several ways. The insects may be destroyed at once by the use of carbon bisulfid. Make a hole several inches deep with a broom handle and put therein about one ounce of carbon bisulfid and cover quickly with a little dirt. In the case of a large nest several holes should be made a foot or a foot and a half apart and each charged with the insecticide. Another method is to scoop out a portion of the soil and fill the cavity with a solution of cyanide of potassium, one ounce to a gallon of water. This soaks into the soil, liberates deadly fumes and destroys the insects. Another probably equally effective method is the sprinkling of the surface of the nest with fine particles of potassium cyanide. This material, it should be remembered, is a most dangerous poison and every precaution should be taken to avoid disastrous results.

Ants may also be destroyed by the use of a very weak solution of arsenic and syrup. This has been tried on the Pacific coast with very satisfactory results. A poisoning syrup consisting of sugar or other cheap sweetening and containing between 0.25 and 0.125 per cent of sodium arsenite may be used. This deadly bait might well be prepared by a druggist. The most convenient way of using the poison is to saturate pieces of sponge with the syrup and place them in a large jar with a perforated cover. Ordinary pint fruit jars having the covers perforated with nail holes are perhaps as convenient as any receptacle. The baited jars should be placed in the vicinity of the nests and so located that they will not be filled with water and at the same time be easy of access to the ants. The insects will take the poison readily, carry it to the nests, and the colony eventually be exterminated through the destruction of the young. A jar prepared as directed above should be serviceable for three weeks, and some half dozen ought to suffice for an ordinary house and lot.

Fumigation may also be resorted to. This will be discussed later, as it is of value in controlling a number of household pests.

The urban dweller finds cockroaches and croton bugs among the most persistent of the food pests. This is also very apt to be true

of hotels and institutions remote from the city, because the large quantities of food stuffs handled materially increase the chances of one or both of these pests being introduced. These disgusting insects feed upon a variety of vegetable and animal matter, and on account of their partiality for water pipes and their vicinity they have frequently been termed water bugs. It is impossible to keep a building moderately free from these pests if the insects are allowed to multiply unchecked in adjoining structures. This is most emphatically true of flats under different managements in the same building, and applies with equal force to any attempts to keep the insects in subjection in one portion of the building, when in another part there may be abundant food and attractive quarters. The first step in a successful campaign against these unsavory pests should be to eliminate, so far as possible, the available food supply and to reduce to a minimum shelters such as cracks and crevices. Badly infested dwellings or portions of dwellings, if moderately tight, might well be thoroughly fumigated at the outset and this supplemented by the persistent use of some roach poison, preferably one not dangerous to domestic animals or man. The Australians have found a dry mixture of one part of plaster paris and three or four parts of flour placed near accessible moisture a most effective method of destroying these insects, though the humanity of the procedure may be open to question. Recent experiments by the writer have shown that these insects, though usually found in warm places, can not survive a temperature of 120° if maintained for some twenty to thirty minutes. Under certain conditions this may be a most effective method of clearing portions of a building of these pests.

The larder beetle, a rather stout, dark-brown insect with the base of the wing covers mostly yellowish, is $\frac{5}{16}$ inches long and may be rather common about houses in May and June. This species breeds by preference on animal matter, such as ham, bacon, various meats, etc. The proper care of these materials, including the adequate protection of those suitable for food, is the most satisfactory method of controlling this species.

Stored cheeses are sometimes affected by the cheese skippers, white, cylindrical maggots easily recognized by their peculiar, jumping powers. Cheese and ham, both liable to injury, should be stored in dark places, and the small, black flies excluded by the use of a fine mesh, twenty-four-to-the-inch being satisfactory.

There are a number of other pests of minor importance, such as the

bean and pea weevils with their close restriction to the developing or ripening beans and peas. The occurrence of either of these weevils in numbers usually means a nearby infestation, frequently a bag of beans or peas lying unnoticed upon some high shelf. The legion of cereal products is subject to attack by a variety of insects, such as the saw-toothed grain beetle, the two flour beetles, and two flour moths. The saw-toothed grain beetle, only about one-tenth of an inch long and easily recognized by its reddish brown, flattened shape, and serrate margins of the thorax, is perhaps the most common of these pests, though the somewhat larger and stouter flour beetles are frequently found. All of these insects develop from eggs, which latter may be deposited in the food itself or in some nearby crevice. Broken packages are very liable to infestation, especially if kept for any length of time in mills, stores, or store rooms where laxity prevails and these little pests are allowed to become abundant. Prevention of injury must depend in large measure upon rigid cleanliness, especially the exercise of care to prevent accumulation of waste cereal products in nearby crevices or corners. Products stored in bulk and infested should be fumigated, preferably with carbon bisulfid, using this at the rate of about 5 lbs. to 1,000 cubic feet of space.

The last group, the disease carriers, is by far the most important, though the insects included in this class attract notice largely for some other reason than the part they may play in the dissemination of disease. We will proceed to discuss several species, making no attempt to indicate the relative importance of the various forms.

The most disagreeable in this group and the one usually avoided in polite conversation is the ordinary bedbug. It requires no description and fortunate is the individual who has not had at least a limited personal experience with the pest. It may not be so generally known that an allied species occurs in swallows' nests and occasionally invades adjacent living rooms to the consternation of the housewife. Bedbugs are nocturnal in habit. The oval, white eggs are deposited in cracks, the yellowish white, nearly transparent young hatching therefrom in a week or ten days. About eleven weeks are required to attain maturity, though the duration of this period is probably greatly modified by temperature and the food available. It is perhaps unnecessary to add that cracks and crevices, loose wall paper, and the old wooden bedsteads afford ideal hiding places for this disgusting pest. The modern, tight construction of both floors and walls and the use of iron or brass bedsteads reduce the shelters for this species to

a minimum and greatly facilitate its control. Extreme vigilance is necessary if one would obtain the upper hand in old buildings. Cracks and crevices should be stopped so far as possible and the joints of the old-fashioned bedstead treated liberally with benzine, kerosene, similar oils, or even hot water. Corrosive sublimate may be employed but it should be used with great caution, since it is a deadly poison. Fumigation with sulfur, using two pounds to each 1000 cubic feet of space and continuing the treatment for twenty-four hours if possible, is advised where the infestation is general. Similar treatment with hydrocyanic acid gas is probably more efficient. Modern institutions, though very liable to infestation, should be able to keep this pest under control by an intelligent application of the principles outlined above.

We would for just a moment call attention to the fact that a severe dermatitis may follow sleeping upon a new straw mattress, provided the straw has been infested by an insect such as the joint worm. There have been a number of such cases. The trouble is due to a predaceous mite which normally preys upon the insects in the affected straw, but under certain conditions may turn its attention to man. The eruptions may vary in size from that of a split pea to that of a penny and are round, oval, or irregular in shape. They may occur on various parts of the body and are accompanied by more or less itching. The obvious remedy is to avoid sleeping on mattresses containing new straw.

Fleas occasionally become abundant in a dwelling. The offending species is usually the cat or dog flea. This insect deposits its very minute, white eggs in the vicinity of the sleeping places of its hosts. The slender, active larvae feed upon organic matter in cracks and crevices, and may become abundant in dusty cellars or rooms undisturbed for several weeks, as for example, when a house is closed for the summer vacation. Fumigation with hydrocyanic acid gas, if thorough, will destroy the pests. A much simpler method is to sprinkle the floor of an averaged sized room with about 5 lbs. of flake naphthalene and keep the apartment closed for twenty-four hours. The acrid fumes destroy the fleas without injury to the contents of the room.

Mosquitoes deserve a word, though under ordinary conditions there should be practically none in institutions. It is well known that these insects must have standing water in the near vicinity or they can not become abundant. The only exceptions are several salt marsh species which may be carried perhaps forty miles by gentle breezes. The occurrence of any number of mosquitoes in an institu-

tion should lead to the careful examination of the premises for uncovered rain barrels, open shallow wells, defective eaves-troughs, nearby dumps with pails, tins, and old cans holding water, or temporary excavations in which water might stand for a week or more. One can hardly think that an institution of any size would be located so near a swamp or swampy area as to be materially affected by mosquitoes breeding in such locations. The obvious remedy is to ascertain the breeding places and either eliminate them or prevent the access of insects by the use of fine screens or tight covers. It may occasionally be necessary to resort to judicious drainage or the systematic application of oil during the summer months. Mosquitoes occurring in a building during the winter are very likely to be malarial mosquitoes. These forms display a marked preference for grassy pools or recent excavations, and an attempt to eliminate their breeding places should be governed by this fact. The few usually wintering in a house may be readily destroyed by hand. It might be well to mention that the presence of malarial mosquitoes and Italians is very apt to result in an outbreak of malaria, since the residents of southern Italy frequently have latent germs of this disease in their systems. It is then comparatively simple for mosquitoes to transfer the infection from the immune Italian to the susceptible American.

Light brown flies, only about one-eighth of an inch long, may be occasionally found about houses. These are the common fruit flies or pomace flies, so named because of their breeding by millions in apple pomace. The occurrence of these insects in a building usually indicates the presence of accessible overripe or canned fruits. These flies are easily destroyed with fresh pyrethrum powder.

The most important insect in homes and in institutions is with very little question the common house-fly, sometimes known as the typhoid fly. It is extremely annoying and also carries, under certain conditions, germs of typhoid fever and may, in the same manner, disseminate other diseases of the digestive system, including cholera and certain other serious infections. It is hardly necessary to present a bill of particulars at the present time. We are concerned principally in methods of controlling the fly. Here the institution has an obvious advantage over the private home, in that it usually has control of a somewhat extensive area. Flies, like other insects, must have material in which to breed or they can not become abundant. Experience has shown that ordinarily flies do not travel a great distance and, in most instances, probably breed within 300 to 500 feet of the places where

they are extremely numerous. Fly larvae are usually most abundant in horse manure, though they may occur to a limited extent in cow manure, and have been found in miscellaneous collections of filth, especially decaying vegetable matter. The flies deposit their eggs upon such materials, the maggots hatch in less than twenty-four hours, and, under favorable conditions, complete their growth in five to seven days. They remain in a resting or pupal stage for about an equal period, at the end of which the parent fly emerges. The life cycle or round of life is therefore completed in from ten to fourteen days. This insect multiplies most readily in moist organic matter, preferably in light places. One of the most fly-beridden situations we have chanced across in recent years was an open barn cellar containing a mass of sloppy manure in a hog pen. Such conditions should never be allowed to exist. Manure can and should be stored in a fly-proof receptacle. This may be a tightly covered pit outside the stable or a cellar so dark or so tight that flies will not or cannot enter. Both are relatively easy to construct with our modern concrete walls, matched lumber and cheap building paper. Even should eggs be deposited in the manure prior to its being placed in any such receptacle, it would be comparatively easy to provide at the farther end of a cellar or vault, a small, tightly screened window which would serve as a fly trap. Any flies issuing would collect at such a window and comparatively few escape to the stable. It is entirely practical to make similar provision for the care of other fly-breeding materials, such as table scraps, decaying fruit, etc.

It is not always feasible to adopt such measures. We know that it requires at least ten days before the fly can complete its life cycle, consequently the removal at approximately five day intervals of all manure and other fly-breeding material will prevent the local increase of this insect. This is entirely practical in many places and in accord with the best agricultural procedure. Manure spread upon a field dries out so rapidly that the insects are unable to complete their transformations. The persistence of flies in localities where this method prevails means that certain breeding places have been overlooked and, as a rule, the evil can be corrected without great expense. There is no reason why stables and barns should be located so near institutions or dwellings as to cause serious trouble on account of flies.

It will be found in practice that some flies are very apt to persist in a neighborhood even after the adoption of rigid precautions. They should be kept out of dwellings so far as possible by the use of

window and door screens supplemented by the employment of tangle-foot or other sticky fly paper, or better yet, a sweetened five to eight per cent solution of commercial formaldehyde, which may also be used at the rate of a tablespoonful to a cupful (one half pint) of equal parts of milk and water. In either case place the solution in a shallow saucer or plate, putting a piece of bread in the center to supply a convenient lighting and feeding place for the flies. These formaldehyde preparations should be renewed daily. They might well be used in stables and other places attractive to flies as well as in the house. Dr. C. F. Hodge of Worcester, Mass., has recommended the use of garbage pails with fly traps attached for the purpose of attracting flies and capturing them at the outset. This may be advisable under some conditions, though we believe that an understanding of fly requirements will make it practical to keep an institution and its surroundings so cleanly, from an entomological standpoint, as to most effectually discourage this persistent associate of man.

A word as to fumigation. The presence of resistant pests, such as bedbugs and fleas in a building with numerous cracks and crevices, may justify thorough fumigation with such a deadly poison as hydrocyanic acid gas. This treatment can hardly be effective unless the outer walls are at least moderately tight, and should be preceded by the careful sealing of all orifices likely to permit the escape of gas. The materials used, namely, sulfuric acid and cyanide of potassium are among our most deadly poisons, and the author has therefore been in the habit of advising the employment of a drug clerk or some equally well informed party to take charge of this work. We have published detailed directions for fumigation, and these are available for those specially interested.

At the outset we called attention to certain conditions which might result in the abundance of insects. We believe that architects and landscape gardeners should bear in mind the fact that apparently minor changes in the construction and arrangement of buildings may have a material influence upon the prevalence of insect pests. Hospitals are now being constructed according to rigid sanitary rules directed mainly against the existence of disease germs. Such construction, generally speaking, is equally well adapted to the prevention of troubles from insect pests. We hope to see the day when the architect and builder will plan and construct dwellings with practically no cracks or crevices for the shelter of insects and, furthermore, by means of tight walls and

close-fitting doors, isolate kitchens and storerooms from other parts of the structure. The ordinary type of construction allows many hollow walls with runways which enable rats, cockroaches, other insects, and vermin to distribute themselves freely throughout the building, and immensely decreases the efficiency of fumigation. A little attention to these details, accompanied by an equally satisfactory arrangement for the disposal of garbage, the location of outbuildings, barns, and the care of the wastes therefrom, will do much toward solving the control of insects in dwellings and institutions.

SOME GENERAL PRINCIPLES APPLICABLE TO THE PURCHASING AND HANDLING OF SUPPLIES FOR PUBLIC INSTITUTIONS.

HENRY C. WRIGHT.

Russell Sage Foundation.

When a steward or purchasing agent of an institution can go personally into the market and select goods it is relatively unimportant that he have in hand closely drawn specifications for such goods. When, however, he must order through the mail, or by means of competitive bids, it becomes imperative that his description of the goods he desires be clear, full, and accurate. Since the supplies for most institutions must be ordered by the latter method it is important that the supplies be properly specified and described.

The most essential elements of a specification may be briefly described as follows: It should correspond to commercial practice, first as to grading, second, as to size and character of package. Commercial bodies, such as Mercantile Exchanges, Boards of Trade, Merchants' Associations, etc., have standardized grades. These grades are recognized in all trading circles wherever such associations deal and goods come on the market and are bought and sold under those descriptions. As illustration, the New York Mercantile Exchange has graded butter into the following classes: "creamery," "process," and "factory." Each of these classes is subdivided into "specials," "extras," "firsts," "seconds," and "thirds," with a full description of each class and grade. All butter in the New York market is bought and sold according to these classes and grades. It is highly important, therefore, for a buyer to fully understand these descriptive terms and to specify his butter accord-

ingly. The butter in each section of the country is graded according to the rulings of some association, and the buyer in that section should be acquainted with the local rulings.

Most of the goods used by institutions are thus graded, and the purchasing agent should be familiar with the terms used. Failure to acquaint himself with these commercial terms may result in loss. For instance, one of the western states specified that the flour for its institutions should be made from "hard wheat" but did not further specify whether it should be winter or spring wheat. It happens that hard wheat may be winter wheat in Kansas or spring wheat in the Northwest. The two wheats are not of equal value, and consequently a contractor bidding upon the spring hard wheat might be at a disadvantage if an opposing contractor bid upon the winter wheat. The Lunacy Commission in New York State contracts for eggs under the description of "first packed," to be delivered throughout a six months' period during the winter. This classification applies only to eggs packed ready for refrigeration and not to eggs that have been refrigerated. As a result, contractors could not be sure as to the grade of eggs on which they were to bid. The Charities Department of New York City at one time specified "special" butter. There is so little of this high grade of butter on the market that it would be practically impossible to fill a large contract for it. It is needless to say the department did not receive "special" butter, although it contracted for it.

Again it is highly important that the packages specified be of a commercial size. Unless care be taken to insure this, it may necessitate special packing in order to fill a contract, which means extra expense. Both the United States navy and army require special packages, but for them they pay an additional price. There is a surprising difference in the size of barrels used in packing various materials. This may be illustrated by the following commercial sizes of barrels: Wheat flour, 196 pounds; corn meal, 200 pounds; cornstarch, 260 pounds; rolled oats, 180 pounds; split peas, 210 pounds; salt, 280 pounds and 320 pounds; sal-soda, 300 pounds; washing soda, 280 pounds; etc. Specifications should designate these net weights so that no contractor would be required to do any repacking in order to comply with the terms of his contract.

Again the terms used in the specifications should be clear and concise so as to permit of no double or doubtful meaning. The

specifications of the Lunacy Commission in New York State formerly provided for "extra" butter, grading certain points according to the grading of the Mercantile Exchange of New York City. The Exchange does not use points in grading, so the terms of the specification were confusing.

If the lowest market prices are to be obtained through competition by honest merchants, it is of primary importance that the specifications be in the language of the trade and in words so clear that they will not admit of a double interpretation.

Again the specifications should conform to the kind of test which is to be used in passing upon deliveries. It is of little use to specify flour in terms of "gluten," "ash," "color," "absorption," "fermentation period," "loaves per barrel," etc., unless the deliveries are to be tested to determine the amount of these elements. Little would be gained by stipulating chocolate in terms of "ash," "theobromin," "caffein," "starch," "fat," etc., unless there were subsequently an attempt to find out whether the deliveries actually contained the specified elements and quantities. Though there are objections to naming trade brands, yet it is advisable to do so if the institution buying is not prepared to make practical or chemical tests. Personally, I believe it advisable for each state to provide for testing chemically all of its supplies which can be readily tested by that means. In such a laboratory, also, expert judgment could be expressed on various products that can not advantageously be tested chemically, such as cereals, tea, coffee, dried fruits, etc. Until such provision is made by a state, it will be necessary for each institution to draw its specifications in terms that will readily lend themselves to practical tests by the steward.

The terms of the contract are important. Provision should be made not only for a rejection of the foods in case of false delivery with the privilege of buying in the open market pending an adjustment, but also for an annulment of the contract in case of repeated and persistent false deliveries. The New York State institutions provided for a rejection of defective foods, but did not provide for a cancelling of the contract in case of a continuance of such deliveries. As a result, they had a very annoying experience with a butter contractor.

It is inadvisable to contract by schedule rather than by items. By schedule is meant a list of articles grouped together and the total bid to be considered for the group. Such a grouping tempts a

contractor to bid low on articles the whole quantity of which are unlikely to be used, and high upon such as are likely to be taken in the full quantities specified.

Much consideration should be given also to the season of the year in which contracts for different supplies should be placed. If an institution has suitable storage place it is advantageous to contract for a year's supply of those goods which come upon the market but once a year, such as canned fruit and vegetables, dried peas and beans, dried fruits, cereals, rice, etc. It is advisable to contract for six months' supply of eggs in April and butter in June, use of which would begin in October. This is feasible either when an institution has cold storage space or can hire it. All supplies that come on the market periodically can be contracted for, month by month, more advantageously than by a long-term period. In New York State one department has contracted for flour in six months' periods beginning October and April, while another department has contracted each month. The short-term or open market buying has proved as economical as the long-term. At the same time it does not require the contractor to speculate upon the market, and reduces his temptation to deliver faulty goods in case the market goes up during his contract. Iowa contracts for butter on the basis of the market price of butter every Monday. The contractor indicates in his bid the amount above or below the market at which he will furnish the butter. As a result of this method, practically all the butter delivered is up to the specifications. In so far as it is practicable for institutions to buy in the open market, I believe it is advisable so to do.

When goods are bought upon samples, it is important that such samples be properly preserved. Many articles of food deteriorate if exposed to the air, such as tea, coffee, cereals, dried fruits. Such samples should be kept in air-tight glass cans. All samples should be kept in the storerooms to facilitate comparisons with incoming shipments.

The method of receiving goods should be well guarded. Care should be taken not only to count all articles after comparison has been made with the sample, but a certain proportion of original packages should be weighed. It is customary for institutions to assume that a 25-pound box of prunes contains 25 pounds, that a 60-pound tub of lard really has in it 60 pounds, that a 196-pound barrel of flour contains that full amount. That such an assumption

is not always well founded has been demonstrated by the Fiscal Supervisor in New York. He gave instructions to weigh all original packages. As a result, quite a proportion were found to contain less than the amount billed, and in the aggregate, for all the institutions, the saving thus secured was material. In case of faulty deliveries some institutions adopt the policy of deducting a certain amount from the bill. In the long run, I believe it is much more satisfactory to reject such a shipment and demand a new consignment which will meet the specifications. In many instances, it is to the advantage of a contractor to ship inferior goods though a deduction be made from his contract price. When this policy is adopted it may be found that a contractor will repeatedly send such defective goods.

Some institutions fail to take sufficient care in the storage of supplies. In many cases, this may be due to a lack of storage space. Except during the winter months cereals and dried fruits should be kept in cooling rooms to prevent the development of worms. Smoked meat should be kept in a temperature between 40° and 50°. A temperature suitable for fresh meat will seriously mold smoked meats. Brine barrels should never be kept in a room with fresh or smoked meats. It is desirable to provide a separate room for pickled meats. Owing to a failure on the part of some institutions to observe these generally recognized provisions, quite a large quantity of spoiled meat was discovered by a United States inspector in the institutions of New York and Indiana.

Deliveries from the storeroom should be guarded with great care. Two forms of requisitions are almost equally acceptable. One is a printed form on single sheets with blanks for the signature of the one making the requisition, the approving officer, and also the receiving officer. The other form is a plain blank-book, a copy of which is furnished to each department. In this is written the articles desired. The book then makes the rounds to the superintendent, storekeeper, back to the department for receipt, thence to the steward for record. Both of these forms are practicable. Whichever is used, however, care should be taken by the superintendent to so cross out the blank space on the requisition that no articles can be added subsequent to his approval. This precaution with regard to the last item can be exercised in several ways, by signing immediately below, by checking it, by drawing a mark

across the vacant space below it, or by numbering the lines and indicating the number of the last item at the time of approval.

It is highly desirable to require that no additional items shall be placed on the original requisition regardless of proper approval. Records can be made much clearer and more certain if new requisitions be made out for any articles omitted from the original order. Care also should be taken that the person receiving the supplies sign a receipt on which each article is checked and on which also is the date of receipt. These precautions are necessary, not only to make a complete record which can be checked up by any inspector, but also for the purpose of making it difficult for any subordinate to take supplies. Even with these precautions, supplies can be taken, but it will require the coöperation of at least two, or possibly three, parties. If, however, the records are checked, one against another, even such a conspiracy can be detected.

In so far as possible, no supplies should be delivered in quantities larger than needed for immediate use. When this is not observed, it inevitably creates subsidiary storerooms, over which there is no accounting and from which supplies can be taken with little likelihood of detection. It is considerably more trouble to requisition for daily use and break original packages and weigh out the needed quantities, but economy will be secured only by this method. If the kitchen has on hand a barrel of sugar, or the cleaning force a barrel of soap powder, they are quite likely to use it with less care than though they had in hand just the necessary amount for the day. I am familiar with one hospital that cut down the cost per year of absorbent gauze and bandages from about \$4,200 to \$1,800, by changing the form of requisitioning and delivery.

It seems highly desirable to keep no records in the storeroom, but to transfer such work to the front office. This method is more expensive, since some store-keepers have spare time, which can be devoted to keeping books. When books are kept by the store-keeper, however, it is always possible to force a balance at the time of making an inventory, and such forced balances are not infrequent. The system which seems to me best is to have orders for supplies made out in the steward's office in triplicate. From one of these copies the amount ordered is omitted. This copy is transmitted to the store-keeper, who uses it as a memorandum on which he enters

the amount of supplies received on that particular order. The form of the memorandum enables him to identify the shipment. This memorandum is then sent by him to the steward's office, where it is checked with the order and the invoice. The invoice should not go to the store-keeper, nor should the store-keeper retain copies of the requisition. Thus, when he takes his inventory, he has no records with which to check it. This checking is to be done by the steward, and if pronounced "overs" or "shorts" appear, explanation is warranted on the part of the store-keeper. Inevitably, of course, some overs and shorts will be noted. It is impossible to weigh out a large bulk into many small portions and have the two weights exactly correspond. Then again, some supplies shrink while being held and others take on additional weight by absorption of moisture. The proportions of all of these factors, however, are familiar to the steward and superintendent and are given proper consideration.

The kinds and proportions of food to serve are large problems, on which there is not sufficient knowledge at the present time. It is easy, however, to determine the relative kinds and proportions actually being used in different institutions of the same class and being operated under about the same physical and climatic conditions. For instance, by comparing the amount of food furnished by the institutions in New York, Indiana, and Iowa, it was noted that wide differences in amounts existed. The state prison at Michigan City, Indiana, furnished per capita per day, 110 grams of protein, while a like institution at Fort Madison served 132 grams. The Institution for the Feeble-Minded at Fort Wayne, Indiana, furnished about 78 grams of protein per capita per day, while a similar institution at Glenwood, Iowa, used 106 grams. Like differences were noted not only as between States, but also within the States. The differences at once prompt the question whether some of the institutions are feeding too little or others too much or are possibly wasting an undue amount by careless handling. I do not here presume to pass judgment upon the question. The differences at least lead to this conclusion, that it is highly important for officers of every institution to make food comparisons with other institutions in an attempt to determine whether or not their own management is economical. Much information is available on relative food values, and with this data in hand, study should be made as to possible substitution of cheaper for dearer foods as the market varies.

Generally speaking, insufficient attention has been given to the problem of waste. Considerable study has been made of sewage and garbage disposal, but comparatively little systematic inquiry has been made into the means of reducing the amount of waste which is disposed of through these channels. The wide disparity in the amounts of food used in similar institutions led me to suggest an experiment in one of New York State's institutions to determine to what extent kitchen and dining-room waste could be regulated and reduced. This experiment has been in operation now for nearly one year at King's Park State Hospital. The results are very gratifying and instructive. This institution is one of the largest in the country, having about 3500 insane inmates. Their system may be briefly described as follows:

Every Saturday, the superintendent of each dining-room sends to the chef an actual count of the number dining in his respective dining-room. Not only is the total number given, but it is divided into classes as follows: Patients, patient workers, and employees. The amount to be issued, beginning the following Wednesday, is based upon this count. It does not need to be figured, but is taken from a basic dietary table which has been worked out by the steward. This table is made out for each dining-room. It indicates the amount that should be served to numbers increasing by the factor of ten or twenty, according to the size of the dining-room. For instance, the table for a room having approximately fifty would indicate the amount to be served to 50, 60, 70, 80, etc. A room serving 1000 would vary as follows: 1000, 1020, 1040, etc. The method of using the table is as follows: After each meal the uneaten food is separated into "usable" and "waste" food. The usable food is such as has not been served on the plates; the waste has been served. Each of these classes is subdivided into the kinds of food, such as bread, meat, potatoes, potato skins, cereals, vegetables, etc., according to the character of the meal. All of these are weighed separately in the kitchen and an accurate record kept. This record is before the chef when he makes his next issue, and a judgment as to how much should be issued is based upon the amount of waste of any particular article at previous meals. For instance, if there had been an undue waste in meat and the count for next week indicated 58 in the dining-room, he would issue on the basis of 50. If, however, it had been very small, and in his judgment too small, his issue would be on the basis of 60, the next higher

basic figure. Thus the basic figure next higher or next lower than the actual count is taken according to the amount of waste previously recorded.

I recently spent a day at the institution observing how the separating of waste was actually performed. I was surprised at the smoothness with which it worked. Each one or two tables is presided over by an attendant. This attendant, with the help of a patient, separates the waste into the required classifications. A large part of this work is done by patients. When this reaches the service room, the superintendent of the dining-room looks it all over and corrects any mistakes that have been made, after which it is weighed. Receptacles of uniform weight are provided for this purpose to reduce the labor of computation. The system not only works smoothly, but the employees undertake it without complaint.

The results of its operation have been pronounced. Its operation revealed the fact that the per capita amount of food served and eaten in the different dining-rooms varied widely. When this was discovered a redistribution was made, resulting in a much better feeding of the working patients and a reduction in the amount served to employees, which amount formerly had been wasted. Thus far there has been no attempt to cut down the total amount of food served. The excesses of one department have been transferred to other departments, where less waste was noted. It is highly probable, however, that after the system has been in operation longer the aggregate amounts of certain foods will be reduced. The waste indicates that such a reduction would be safe.

With such a system, carefully operated, thefts of food are easily detected. Under the looser system customarily in use, it is difficult to discover local minor pilfering. The system, in operation, requires no additional employees, and has in it marked possibilities.

Careful institutions determine scientifically the exact quantities of their coal, how much water is evaporated by each 100 pounds, the fluctuations of the steam pressure, the amount of ashes, etc. Why do they neglect to note with equal care the consumption of food by the inmates? It is much more important, and would result not only in marked saving, but also in an accurate knowledge of the acceptability of each article of food and its effect upon the inmates.

A system worked out with equal or greater care should be applied

to all supplies used by the institutions. The saving would amply repay for the labor expended.

My examination of the state institutions leads me to urge a much more careful system of records and a much closer determination of unit costs, both as to material and labor. Every state needs to do more than it is at present doing for its sick and dependent. Unless capital and operating costs can be reduced, expansion of the work will be exceedingly slow. If the taxpayers become convinced that their money is as carefully, yes, more carefully, expended than in private business, funds for enlargement of the work will be, I feel sure, readily granted.

Discussion following Professor Wright's paper:

Dr. Shanahan. Comparison between different institutions is difficult because of different organizations and methods. Craig Colony for Epileptics has a large number of small kitchens in cottages averaging twenty to forty patients and the waste is much greater than with one central kitchen.

Mr. Wright. This is a common belief. Service on the plates in a congregate kitchen is automatic, appetites are not the same, there is no attempt to gage this with large numbers while it can be done in small kitchens. We do not yet know in which there is the most waste.

Dr. Bernstein. We have principally the congregate plan at Rome State Custodial Asylum and care for 1200 people, 600 in one group, 400 in another, with over 200 employees and two farm plants. Things are eaten up cleaner in a small group and individuality is catered to. About 200 seems the best unit, one kitchen to prepare the bulk of the food and serve in six dining rooms for 1200 people, rather than to have six separate complete kitchens.

Mr. Dewey. What is the difference in cost between small and large dining rooms? If you have several thousand to feed, is it better to have one kitchen or divide into many? Opinions vary. What is the unit of greatest efficiency and economy in feeding people? Where is it better to divide?

Mr. Wright. This whole question of an economical unit has not yet been studied. How far can steam be carried economically from a central plant? It is impossible for any one institution to solve these problems. Waste is not yet studied. Take two dining rooms with the same careful steward and having about the same variety. In one the

bread is cut several hours ahead, in the other cut fresh, and there is great difference in the amount of waste in dried bread. The same with meats and other food which stands any length of time.

Professor Cole. The Massachusetts General Hospital inspects and regulates waste in garbage. The cans are all numbered and the contents are poured out in the presence of the housekeeper who makes a record of all substances in excess. The first year this was tried expenses were \$5000 less than the previous year. The saving in silver recovered was also considerable.

Mrs. Moran. The New England Kitchen cut off a part of its work which was not yielding a return, with good results. There is a large wage waste in feeding 2000 a day. In one lunch room many rolls were left. The size was decreased seven ounces to a dozen and waste decreased. An extra piece of butter was served with potatoes but after the rule was made to serve only one unless asked for, the butter waste was decreased from 13 to 4 pounds. Laundry loss was traced to the fact that receiving clerk did not know just what she should receive back.

Food packages do not contain what they should. Some things shrink and should be allowed for.

Can we not get the State Charities Aid Department or the Sage Foundation to investigate some of these subjects?

It was voted that the Sage Foundation be asked to conduct an investigation on the most economical unit for administration of institutions.

A Member. An attempt was made to introduce into several institutions a certain grade of flour supposed to contain more nutriment to the loaf. In one, the patients would not eat it, in another they liked it very much. Millers themselves differ greatly in their estimates of quality of flour. One may judge by the amount of bread wasted.

Dr. Langworthy. There is very little difference in the chemistry and digestibility of flours. Some people like brown, some white flour. The color comes from coloring matter in the outer part of the grain. The miller finds by experience that white flour keeps better because it is the rejected part that spoils most easily. There is the same amount of nutriment in both kinds. In some flours there is more of wheat oil. A small drop of this oil is the most powerful laxative known. The difference is not due to coarseness of grinding. We are not in the dark in judging the quality of flour, as there are satisfactory tests. There is also a great mass of information in regard to

the deterioration of butter and flour that has been stored for any length of time. Animal and vegetable foods should be kept separate.

There are available reports of dietary studies at a number of institutions. At Bay View in Baltimore the patients are cared for very cheaply. Mrs. Abel is on the board of managers and has introduced as perfect a dietary as you can get for $7\frac{1}{2}$ cents a day. There are many old people and instead of ordinary stew they have meat ground into the stew, and bread good enough for any table. Their success is due to applied expert knowledge. We need both empirical and laboratory knowledge. In every college the mass of material in government, state, and municipal documents, should be available and used in training courses.

The discussion which followed led to the following suggestions:—

That text books would be valuable for stewards' use. In baking bread the size of loaves is important. The commercial loaf is usually large, thick, and not sufficiently baked. A Home Economics loaf should be thin and crusty.

Concerning waste, Lake Mohonk can feed a pig for every $2\frac{1}{2}$ guests and at the end of the season get \$2500 for its pigs. There is a grease-rendering plant requiring one man, a one horse team, 2 steam kettles and a cauldron for cleaning garbage cans. This plant clears \$1000 a year. Waste should be separated, tea and coffee grounds especially, and inspected. Glass in waste does not help pigs. A piggery was mentioned having a smooth concrete floor 80 feet square; waste was dumped on it and the floor kept clean and sanitary, and \$5000 a year was cleared.

At the Hospital for the Insane at London, Ontario, the farms grow tons of small fruits and melons with most satisfactory results. The question was asked as to how many people are required to make it pay to put in a sewage disposal plant, but no answer was obtained.

At the Rutland Sanitarium, in Massachusetts, the waste is largely¹ utilized. A neighboring hennery buys beef scraps at two or three cents a pound which are ground for the poultry. Grease is sold for \$1.50 a day and as the pigs are profitable there is practically no real waste.

Printed forms for food supplies, used as a basis for bids, have worked very satisfactorily at Rutland, though contractors do not like them. For all except emergency orders which can not wait for bids, like drugs, they are desirable. The receiving end of an institution plant should be strong, as when manned by an expert butcher, or store keeper. All foods should be standardized on the bid basis. If goods are not

satisfactory they must go back at expense of the sender. If wrong three times, do no more business with that firm.

The Boston cut of beef, a five rib roast, is found most satisfactory. There is much difference of opinion in regard to the Boston and New York cuts of beef among institution workers.

The New England Kitchen finds that a loin of 65-75 lbs. gives best satisfaction. A 70 pound loin gives a larger number of steaks. With beef, as with flour, there must be a standard for institutions. With flour it is better to give the analysis required rather than to advertise the makers by specifying a grade. The variety of results with bread are due largely to methods of handling the flour. In one institution, when the bread was ready to be baked it was put on a truck and rolled a long distance to the oven; the loaves, flattening and settling, were largely spoiled.

A report was made by Miss Watson, MacDonald Institute, Guelph, Canada, on the work done by the Canadian Government in providing facilities for the testing of flour. A wheat and flour testing plant has been established at the Agricultural College, where milling and baking tests may be made. The problem is to secure the production of flour of even granulation and the determination of strength and quality of the wheat which is to be milled. By this testing machine, it may be determined whether the fault lies in the flour or in the process of manipulation. A knowledge of chemical differences in flour is given by which some of the problems of the bread making processes are solved.

Mr. Dewey pointed out the need for obtaining the accurate cost of the care of by-products in relation to waste. The making of soap, the raising of pigs, and the utilization of sewage as a fertilizer were discussed.

Miss Florence D. Corbett of Whittier Hall, New York City, explained the methods employed for returning unsatisfactory shipments to the dealer at his expense. If too many errors in billing et cetera are made on the part of the dealer, thereby necessitating an unusual amount of clerical labor to the institution, a charge against the dealer is made and he is notified that if such conditions continue he will not be asked to bid upon other orders. It was suggested that a valuable piece of work could be done by the Association in considering carefully points of law on contracts for the benefit of the inexperienced. It was pointed out that state institutions would be able to help in this matter as their regulations in the making of contracts and the relations of the institutions to the dealer are subject to legal advice and carefully worked out.

UNIFORM ACCOUNTING FOR INSTITUTIONS.

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I am supposed to be making a report as chairman of the committee on uniform accounting, but as a matter of fact I am rather making a personal report of progress toward the formation of such a committee and toward the preparation of a tentative plan of institutional accounting to be passed upon by it. Since my talk here a year ago I have been able to give to this subject only tag-ends of time, mostly after midnight when a good day's work had already been accomplished, and in the way of the formation of a committee I have been able to get only the assurance of the willingness of others to serve with me in the preparation of a final plan which we hope to have ready to present to you a year hence. I am very happy to announce that Dr. F. A. Washburn, Jr., superintendent of the Massachusetts General Hospital, which, as doubtless many of you know, is a very large establishment particularly well conducted, and Miss Olive Davis, superintendent of halls of residence at Wellesley College, will serve on this accounting committee.

In order that the committee may have something definite to work upon in the preparation of a final report for uniform accounting, I have attempted to carry my plan farther than I described to you a year ago. I think it will be worth while to outline the plan briefly in order that any discussion that it may stimulate may be helpful to the committee in its final work.

I have been impressed often, and for a long time, by the fact that comparatively few corporations or other business organizations make a statement of their financial operations in a form intelligible to persons not familiar with the details of their work, and therefore I have attempted to formulate for institutions a type of balance sheet and of income sheet which shall give a survey of the whole situation in a brief statement. The balance sheet should make it possible to compare the present situation with that of a year ago, and should make that comparison easy through the medium of parallel columns. If the figures for the last year are placed at the left of such a sheet, with a column for increase and one for decrease immediately following, and then the present figures are given at the right of the titles of accounts or groups of accounts, we have as the most conspicuous

figure on the sheet the present situation, but an easy correlation of the present figures with the old figures.

The assets should be divided into several groups. The property of the institution should comprise the first group, and should be shown in more or less detail, at least in enough detail to indicate the different types of investment, such as sites and grounds, buildings, furniture and fixtures, machinery and tools, etc.,—the classification being based on the varying considerations which would apply in judging one or the other of these groups. The second group should include investments, which, in the case of many institutions, would comprise the endowment. The sum of these two general groups, that is, properties and investments, would constitute the capital assets (unless there were certain cash funds destined, perhaps, because of restrictions, for capital use). The second main group of assets would be the so-called current assets, comprising any accounts receivable, supplies on hand, current cash, and accrued or prepaid items.

A similar division may well be made for the liabilities, so that the capital liabilities will be reported as capital stock, or proprietorship for charitable and other public institutions, special funds, bonds and mortgages payable, etc. The current liabilities are of the ordinary type, such as bills payable, accounts payable, and accrued items.

The statement which is of most importance in giving a summary view of the transactions of an institution for any particular period is the income sheet, which I should divide according to circumstances into several separate schedules. The best illustration that I can give of this is possibly that for a hospital. It is obvious that wherever there are several sources of income and several kinds of expenditures, it is desirable to show how far any of the kinds of income are adequate to take care of the expenses connected with them. In a hospital, for example, the first fact we wish to know is how far the income from patients is adequate to pay expenses. If we represent all items connected with the care of patients in a schedule by themselves, which we may call the revenue account, the resulting surplus or deficit gives us in final form the desired figure. This surplus or deficit may be carried down to the next schedule which we may call the endowment income account. This ought to show us how far the income from the endowment of the institution is adequate to make up for a deficit in its direct revenue or will add to its surplus.

There remain for most hospitals two other sources of income, the first of which comprises annual subscriptions from charitable organizations and individuals, and the second, legacies. It happens that subscriptions are likely to maintain a fairly steady level and may with some degree of certainty be counted upon by the administrative officers to meet running expenses. Legacies, on the other hand, are extremely variable, and may run very high in seasons of an abnormal death rate among the well to do and very low even in extremely prosperous seasons which happen to be seasons of good health. For this reason it seems desirable to make a distinction between these two kinds of income, and therefore provide separate schedules for them. If we bring down the surplus or deficit from our second schedule into a third schedule, which we may call "normal current income," we have a final surplus or deficit resulting from what may be considered the normal transactions of the period under review. This figure in turn, when carried into the fourth schedule comprising legacies, will give us the final result for the year as affected not only by normal income and expense but by the transitory and unreliable matter of legacies. If any legacies have been received subject to the restrictions that they shall be used for capital purposes only, it is hardly feasible to consider them as of the same class with unrestricted legacies; but since most persons who are interested to watch contributions to an institution of this sort are not familiar with accounts and are therefore likely to expect to see even capital legacies placed with the income, it is desirable to place them in this part of the statement but designated separately. It might be well, therefore, to recognize that this fourth schedule is not strictly an income schedule nor yet a capital schedule, but combines all kinds of ultimate receipts, and distinguishes those for current use from those for capital use. On this schedule should be shown not only both sorts of legacies, but what portion of all legacies received has been set aside for capital use and what portion has been applied either to current running expenses or to the accumulation of a fund for future expenses.

To these schedules may be appended details for purposes of comparison—one institution with another or one year with another; but any one who has attempted to make comparisons for himself either within any institution or between institutions will recognize the importance of the summary statements even though details be not shown.

Before I explain to you any of the details of the processes by which I attempt to learn the costs of running the various departments of an institution, I am going to explain that the whole thing will sound very complicated, and to admit frankly that I expect you to look with a great deal of skepticism upon the desirability of doing so much accounting. It is very difficult for a person not familiar with bookkeeping processes to realize that a great deal of information may be recorded and correlated and preserved with very little labor—if only the bookkeeping system is adapted to this specific purpose. It is also true that many bookkeepers are not competent to devise systems which shall give a great mass of detail without an inordinate amount of time and manuscript. Possibly the best way I can indicate to you that not only is a great amount of detail possible but profitable is to tell you that at the Massachusetts General Hospital are kept only a little fewer than two hundred fifty separate accounts for foods consumed in the ordinary course of hospital work, and that somewhat more than two hundred fifty accounts are kept for the group of items called “medical and surgical supplies.” I have never dared to suggest to persons interested in this kind of accounting more than fifty accounts for these two general groups together, because I know how easy it is to frighten anybody with masses of detail; but Dr. Washburn introduced a number of new accounts several years ago and found them so profitable that he proceeded to cut most of them up into many other subordinate accounts and so continued the process of cutting up, until today there is practically no item of consumption in either the food group or the supplies group which has not an account of its own. When I asked him how much of a clerical force is kept busy in recording these items, he remarked that one of the bookkeepers does it all in what otherwise might be odd moments, and that usually the figures for any month have been entered during the first half of the succeeding month without any crowding of the regular work.

Of course adequate accounts cannot be kept without adequate bookkeeping, and no one should think for a moment that a proper system of accounting can be introduced in any sort of institution with the addition of a little untrained labor. The person in charge of the accounts must know not only what are the common labor-saving devices of bookkeeping, but also what fundamental accounting principles must be observed in drawing final conclusions from

the records. Yet it is possible to devise a plan which can be carried out by persons not particularly skilled in the handling of accounts and get results for various institutions that make possible a really valuable comparison between them.

We may now turn to the methods by which we hope to produce ultimate figures of cost. It may be well to begin at what is chronologically the wrong end, and suggest what figures we are aiming at and then look back and see how they may be attained. I have devised as my ultimate aim a statement which I call "final summary of institutional expenses." This shows not only the totals for various groups of expense, but the conversion of all those expenses into a cost per unit.

Since one of the best types of institution that I can use for purpose of illustration is a hospital, let me give you some imaginary figures for the types of expenditure to be met there. Most expenses should be shown for the unit of the patient-day, but a distinction should be made between ward patients and private-room patients because the conditions of service are so widely different that the expenses are much higher in one than in the other.

As I suggested to you last year, I am satisfied that it is absolutely essential for any adequate comparison of results that the figure of compensation for employees shall include not merely wages but everything else in the nature of compensation, such as board, lodging, and laundry. The amount of compensation per patient-day should appear on the final summary in all the groups of expense, such as administration, professional care of patients, living expenses, etc.; that is to say, we wish our administrative expenses to include all the expenses of administration, so that any cost of food, cooking, and service for the benefit of administrative employees shall not get into the cost of food, lodging and laundry for the patients. The same would be true for the group of expenses under the head of professional care of patients; so that in that group would be charged not only the wages of nurses, orderlies, etc., but their board, lodging, and laundry, and that when finally we come to our living expenses we shall have a figure which represents the living expenses of patients only. It is absurd that an institution having many servants and rather a scanty commissary should report as high a cost of food, of cooking, and of table service as an institution having few servants and a much better standard of living; and yet if we fail to distinguish between the board cost of employees and

the board cost of patients, a large number of servants would raise the apparent figure of living expenses without in the least raising that portion which is due to food consumption by patients. In this final summary, the living expenses are divided into four items, namely, food supplies, cooking and service, housing (including housekeeping), and laundry. When, therefore, we have added together the cost of administration, the cost of professional care of patients, and the cost of living expenses for patients only (all other living expenses being carried to the administrative group or the group of professional care of patients as indicated above), we have a final figure which is the cost per patient-day for the actual patients; and the details of food-cost, cost of cooking, cost of service, cost of heating, lighting, etc., are preserved along the line, so that we can make comparisons in groups or in details.

There are of course many items of expenses which are not useful statistically on the basis of the patient-day. For example, ambulance service is the same for a person brought to the hospital for a two-days' stay as for one brought for a three-months' stay. Not usually are many more laboratory tests or examinations made for a patient who stays a month than for one who stays a fortnight. These various special items of expense, therefore, should be converted into unit costs for units which are determined solely by the nature of the service rendered. The unit for ambulance service, for example, is trips, for the dispensary is number of treatments, for the home nursing department is the number of visits.

The result of all this is that we have a unit cost for all types of service rendered, divided not only on the basis of the kind of service rendered but also on the type of patient for whom it is rendered. Any figures less distinct, less specialized than these, seem to me not to serve the purposes which animate us in a plan of uniform accounts, for unless we have final unit costs, it is impossible to make a comparison between institutions working under varying conditions, such as a hospital where the nursing is done mostly by nurses in training without wages and hospitals employing only graduate nurses, or schools utilizing the services of scholars and schools employing only paid laborers who board outside and schools using only employees boarding on the premises.

The obvious difficulty in the way of getting these final figures is to make distinctions, as we go along, between expenditure on account of employees and expenditure on account of the persons for whom the

institution is primarily maintained—as patients in a hospital, pupils in a school, guests in a hotel or club. In the first place, no supplies should be issued without a requisition upon the stores department, for otherwise there is no knowing what is their destination. These requisitions accomplish the purpose, without much labor, for everything except foods; but in this respect, since in any large establishment several tables are likely to be maintained and many foods are common to them all, great care is necessary to see that each table is charged for its actual consumption. Yet I feel that I ought to remind you that a thing which is very complicated to explain is sometimes, when once understood, very simple to carry out, and I could keep the records for possibly many days in less time than it would take to explain the process for a part of one day. If a proper count is taken of heads, so that the figures show how many persons are taking their meals in the establishment under the various groups, the unit for each type of table becomes the day or the meal. If we divide all foods into three classes, (1) those which are common to all tables—such as butter, sugar, flour, milk, etc.—(2) those which are common to all tables for any particular meal—such as squash, potato, sauce, dessert—and (3) those which are peculiar to some tables for some meals—such as squab for private-room patients in a hospital and boiled beef for the employees—we have a means of following the distribution: For the total cost of all foods in class 1 (figured in totals at the end of the month) may be distributed among all types of tables per capita; the total cost of all foods in group 2 must be figured for each meal but may then be distributed per capita, for being common to all tables for each meal it is chargeable against all equally; the cost of foods in group 3 must be figured for each meal, of course, and must be charged to the individual tables on the basis of the number of persons at those tables. To make these calculations and the distributions is not nearly so serious a task as at first sight appears; for obviously somebody must determine what is to be served at each table, how much raw material will be required to prepare that food, how many persons must be provided for, and must make a record of these facts for the use of the cooks. If this record is preserved, all the figures are at hand for the office to make a distribution of the food cost, and only a small amount of calculation, applying the purchase price to the goods consumed, is necessary to give the desired figures.

Since the time-books will show the number of employees in each

department, it is a simple matter to determine for each class of table the amount which should be charged to that department for the board of those employees. Similarly, the cost of lodging for the various employees should be distributed to the departments responsible for them. Indeed, a general distribution of all housing costs throughout the institution should be made at least annually. To do this does not require inordinate labor. When once the floor space and cubic space of the rooms occupied by the various departments and of the quarters used as lodgings by employees of the departments have been calculated, it is easy to determine what proportion of all the costs relating to housing should be charged to these departments. Certain items like cleaning should usually be distributed on the basis of floor space; heating, lighting, and building repairs should usually be distributed on the basis of cubic space; but in any particular case it is necessary to consider the circumstances of that institution before the space-cost distribution can be made satisfactorily. It would be unfair, for instance, to charge certain departments for light on the basis of cubic capacity if in those departments light is used only at rare intervals, or only for a desk situated in a corner. Practically all the house and property charges, including heating and lighting, insurance, taxes, rentals, care of grounds, etc., may be distributed on this space-cost plan; and when once the calculations have been made determining the percentage for each department, no further calculations need be made, except to apply the fixed percentage of the total cost, until some re-arrangement of housing has been made. The calculation of these figures, moreover, is not very laborious if only one takes advantage of such mechanical devices as the slide rule and computing machines.

One of the most difficult costs to distribute has proved to be that of laundry work. So far as I have been able to learn, no laundry anywhere knows the actual comparative cost of doing various kinds of laundering, but an investigation has been started and we hope soon it will enable us to determine for a large institution what ratio of the total cost should be applied in charging towels, napkins, table cloths, sheets, etc., to the various departments, and thus enable us to make a comparison of costs between various institutions for their various departments. It is easy enough, of course, to learn total laundry costs, but if these are properly distributable to the housekeeping department, the service or dining-room depart-

ment, and the various other departments, for the laundry work done for their employees, it is important that we shall have some basis of distribution better than the number of pieces.

It is obvious that if we charge to each department the board, lodging, and laundry of its employees, and credit the food departments, the housing account, and the laundry account for those sums, the amount remaining as a charge to the food departments, the housing account, and the laundry account is the amount directly chargeable to the service of those for whom the institution is primarily maintained—whether patients, guests, students, or what not. This, of course, is the ultimate figure which every one is seeking in order that comparison may be possible between different institutions; for the method which I have so far suggested allows for all differences of conditions not inherent in the situation itself.

The next elements which I have to suggest in the complete scheme are those about which there may be the widest difference of opinion. It is not customary in business to charge interest on equipment; but I am satisfied that many institutions are conducted at a loss, or at least with something less than the possible benefit, largely because there is no check in the accounting on extravagance by managers of departments. For illustration, I know of a hospital, whose trustees give the superintendent a very free hand, which has equipment of a very expensive sort far in excess of any probable need for some years to come. The superintendent takes pride in pointing out the beautiful facilities and has reason to do so; but so long as this equipment is lying idle or is doing work at a slightly greater convenience than might be done by less expensive equipment, either the funds of the hospital itself are lying idle when they might be earning interest, or else the institution is raising funds from the community that might more profitably be spent elsewhere. The only check which can usually be applied against extravagance of this sort is an understanding that whoever for any department orders equipment will find his costs at the end of the year increased by interest on that equipment. This interest should be credited not as an operating earning, but as income from property. It is true also, of course, that allowance for interest is necessary not only as a check on extravagance by managers of departments, but also to enable us to make any comparison between institutions as a whole; for if we make no such allowance, an institution with very elaborate equipment will have naturally lower direct operating costs in the

way of wages and miscellaneous expenses and will by so much appear to be better managed, when, as a matter of fact, it would probably exercise better economy to plod along with inferior equipment in spite of a slightly increased cost for labor and miscellaneous items.

Unless, again, depreciation on equipment is taken into account, there is danger that our comparisons not only between different years and different managers within an institution, but also between different institutions, will be extremely misleading. Every one knows that in hard times managers skimp on renewals and repairs and in flush times try to make up the deficiencies. This undoubtedly is good policy, but it does rob Peter to pay Paul, and it does throw out of usefulness all comparisons between one institution which happens to have a flush year and another which happens to have a lean year. I should go so far as to say that depreciation should be allowed on every class of equipment, and that the amount on the separate classes should be kept distinct unless it chances to be very small.

This means, of course, that something approaching an inventory must be taken at least annually. It is not necessary that every item should be listed and appraised, for often one can give a pretty accurate estimate of the percentage of value to cost in some room or department as a whole. In dormitories, for instance, it would be absurd to value each individual chair, but a glance at almost any room would suggest to a competent manager that 25 per cent of its cost, 50 per cent, or 75 per cent is a fair valuation. And when once an inventory has been taken on the basis of cost (or, better, if whenever articles are replaced they are listed as belonging to that department), an allowance for shrinkages can be made each year without undue labor. It should be recognized, of course, that depreciation in one article is offset by new value in another article in the same department, and that what we desire is never individual valuations but the valuation of equipment for any department as a whole.

The bookkeeping methods by which all this may be brought about may be worth summarizing. The various departments of an institution would be given general accounts in the general ledger, and for convenience in making memoranda, etc., each would have its symbol. These departmental accounts would be divided each into several special accounts, each of which would be represented in a subordinate ledger containing details for the various items of direct expense pertaining to them,—such, for example, as express,

stationery, postage, and miscellanies, under office expense. Each of these general accounts would have also certain subdivisions which would be used ordinarily only for transfer or closing entries at the end of each month, quarter, or year. In the ordinary course of bookkeeping the special expense accounts, such as have been enumerated for the office expense, would be debited from the cash book or the voucher register, and this plan would contemplate no change in the method except possibly the provision of a special expense ledger which would show in detail the items shown in the lump sum for the general ledger account. The various items which cannot be charged directly as payment is made, such as board, lodging, interest, depreciation, etc., would be charged to accounts representing the institution as a whole, or certain subdivisions of those accounts, and would be distributed at the end of any convenient period to the proper accounts representing departments.

This may be illustrated by the housekeeping department. In the ordinary course of business this department would be debited for wages, supplies, and express, but at intervals it must be debited in addition for the board of its employees, for their rooms, for their laundry, for interest on its equipment, and for depreciation. To the steward's department will have been charged not only the cost of all food purchased, but salaries, etc., and to the kitchen department will have been charged wages, supplies, fuel, etc., and also board, rooms, and laundry of its employees. When all the costs for the steward's department and for the kitchen department have been combined into a "transfer board account," a total may be distributed by a simple journal entry to the various departments concerned, and the housekeeping department in its turn will be charged with its share, to be added to the items already mentioned. This total debit to the housekeeping department is then transferred to the "transfer housing account." To this transfer housing account would be transferred also the cost of repairs of buildings, interest on investment in buildings, taxes, etc. The total is then distributed to the various departments having employees housed, or using quarters for their own transactions—such as operating rooms in a hospital. In the end, nothing remains in the transfer housing account but that which is properly chargeable to the persons for whom the institution is maintained, as already suggested. These transfer items appear to be more or less complicated and to

require a good deal of labor, but when the system has once been worked out and the method thoroughly understood, it is a simple matter to attain the final figures of cost as already outlined.

The result of all this is the possibility of learning accurate costs all along the line—total costs per capita day, costs per capita day for large groups of expense, costs per capita day for small detailed items of expense, and actual amounts of expense for both large and small divisions. These, moreover, would be all put on the same plane, e. g., compensation would be *all* compensation, whether in wages, board, or what not, and so institutions under different conditions in such respects could be compared, and within an institution comparisons could be made of different methods. Only when this sort of thing is done can any valuable comparisons be made, for no two institutions are operated under the same conditions.

Discussion of Professor Cole's paper:

Mr. Cole's paper was discussed as follows:

The question as to the proper method of evaluating the produce of one department which is used by another department was raised, and Mr. Cole stated that, in his opinion, the department producing the product should be credited with the actual cost of production, and the department utilizing the product should be charged at the same rate. The concrete example used was that of the products raised on the farms of institutions and consumed by the inmates.

Mr. Dewey said that such products should be charged at their market value, the producing department having the benefit of any profit accruing.

The different methods used in reckoning per capita food costs were outlined by Mr. Dewey as follows:

(1) Dividing the total cost for workers and guests upon the basis of the number of guests.

(2) Dividing the food cost of certain groups of workers and guests upon the basis of the number of guests.

(3) Separating the food cost of the workers from that of the guests and getting the per capita cost per eater.

This difference in method of computation makes nearly all the available data useless for comparative purposes.

TENEMENT HOUSE SUPERVISION.

MISS EMILY WAYLAND DINWIDDIE.

Trinity Church Corporation, New York City.

There are not enough competent workers in any branch of tenement house supervision. The development of the improved housing movement is constantly creating new positions to be filled. One city after another is attacking its housing problems and calling for experts to help in investigations and plans. New model tenements are being built and the owners in some cases are having serious difficulty in finding supervisors.

A tenement owner said to me a short time ago that it was hard to secure a manager for her houses. I said: "Have you tried so and so?" She replied: "It is no use. Ever so many people want her, but she cannot take charge of more houses than she has already."

A citizens' committee interested in a housing campaign in a large city tried for two years to find an experienced investigator to study their local conditions. Their important campaign was delayed during this time because of the scarcity of trained workers, making it impossible for them to secure one to fit their needs.

There are positions for women as well as men. It is interesting to see the part the former are playing. Much of the work of the Octavia Hill Association in Philadelphia has been done by women directors and rent collectors. In New York Miss Ellen Collins and Miss L. T. Caldwell have been conspicuously successful in model management of houses. The City and Suburban Homes Company, the largest model tenement organization in New York City, employs women as both superintendents and rent collectors. Mr. Alfred T. White of Brooklyn has a woman in charge of each of his groups of model houses. Many of the best special housing investigations, such as those of Miss Mary B. Sayles in Jersey City and Miss Janet Kemp in Baltimore and Louisville, have been made by women. Not a few of the more permanent unofficial positions dealing with the general tenement house situation are held by women, such as Miss Madge D. Headley in New York and Miss Clark in Boston. In New York, in Chicago, in Philadelphia, and in other cities women have been appointed official municipal sanitary inspectors.

Tenement house supervision is a wide field, covering several different kinds of work. There are special investigations, both unofficial

and official, the former conducted on behalf of citizens' committees or other private organizations or private individuals, the latter carried on under the direction of municipal, state, or federal housing commissions appointed for a limited time. There are various forms of permanent supervision, either public or private, of the tenement conditions of any given locality, such as the work of the Tenement House Committee of the Charity Organization Society in New York, and of the New York City Tenement House Department. And there is the supervision and management of the individual tenement house or groups of tenements on behalf of the owners. This last in the United States is private enterprise only, since we have no municipal or other public ownership of tenement buildings.

The results already accomplished in all divisions of the work make an inspiring record of achievement.

In New York in the early days great improvements were brought about through the investigations of the New York Association for Improving the Condition of the Poor, the city inspectors, the council of hygiene, the Metropolitan Board of Health, the successive Tenement House Commissions, and individual pioneers in the field, such as Mr. Alfred T. White, and Mr. Jacob Riis. Existing conditions were brought before the public and steps were taken to remedy many of the worst of the evils.

Tenement houses may seem bad today, but if we compare present and past we find ground for encouragement. We no longer have the old fever centres. In 1842 Dr. John H. Griscom, then city inspector in New York, described one of these. The front building was partly used as a saloon and partly let to Irish families. A covered alleyway led to the rear house on the same lot, occupied by negroes. A number of pigsties and stables surrounded the yard. From the quantity of filth, liquid and otherwise, from these, the yard had become almost impassable. To remedy this it had been completely boarded over. The boards were partly decayed and by a little pressure even in dry weather a thick greenish fluid could be forced up through the crevices. In the rear building in the course of six weeks there occurred nine cases of typhus fever. By way of reforming the building it is recorded that later the number of pigs about it "was reduced to that allowed by law."

The filth of the houses, the primitive methods of disposal of waste, and the swarms of flies carrying disease germs from foul matter to food and drink offered favorable conditions for the development of

sickness. Six thousand people in the city died of cholera and related intestinal diseases in five months at the time of one epidemic.¹

In the infamous Gotham Court, otherwise known as Single and Double Alley from the two alleys along the length of the building and containing the partly open sewers carrying off the drainage of the houses, Dr. Pulling said in 1864, that of the 504 inmates of the court at the time of his visit, 146 were suffering from diseases of various kinds, including 4 cases of smallpox, 8 of typhus fever, 7 of scarlet fever, 27 of infantile marasmus, 12 of consumption, 5 of dysentery, and a large number of cases of other intestinal diseases and of skin diseases. As to the infant mortality, he said: "Thirty per cent of those born here do not survive a twelvemonth."

It is something that advancing sanitary standards have wiped out such houses as these of the old days.

In recent times progress has been even more marked in many respects. In New York, for example, as an outgrowth of the work of the Tenement House Committee with Mr. Lawrence Veiller as secretary, there was appointed the State Tenement House Commission of 1900, which drafted the present tenement house law, and in 1902 there was created the present permanent municipal Tenement House Department, whose sole work it is to see that the tenement buildings in the city are built and maintained as required by law.

This means that the type of new tenements going up in New York City has been radically changed. The so-called "new-law" tenement has taken the place of the old "dumb-bell" type in Manhattan and the Bronx and the "railroad train" in the other boroughs.

Instead of the halls and 10 out of 14 rooms being dark and ill-ventilated on each floor below the top story, as was the case in the "dumb-bells," the halls and rooms in the new tenements all have light and air. In place of the old 28 inches wide air-shaft on which bedrooms opened, the inner court in the ordinary new building in Manhattan is now 12½ by 25 feet and in addition has a tunnel at the bottom extending out to the street or yard to give a current of fresh air.

Each family in a new tenement has its separate water supply and sanitary accommodations.

Fire escapes with inclined stairs, flat treads, and a hand rail have taken the place of the old vertical ladder type, down which officials in the Fire Department reported no woman or child had ever been known to escape. Halls are now fireproof and the cellars, a danger

¹ Report on Cholera in New York, Board of Health, 1849.

point for the starting of fires, are cut off from the floors above by fire-proof ceilings and outside instead of inside stairs.

The improvements in these two points alone is an immense advance. In "new law" houses we have approximately a million people living in light rooms instead of the dark rooms which were being built immediately before the passage of the law and would presumably have continued to be built but for its enactment. This must inevitably influence the tuberculosis rate and the general vitality. In the matter of improved fire protection we can see results already. A fairly recent report of the Tenement House Department showed an average of between forty and fifty deaths a year from fire in the old tenements and not a single death in the new buildings, though these have been erected now for ten years and house a million people.

The Department under the law also required improvements in the old houses, including the lighting of dark rooms at least by large windows to adjoining rooms, the providing of fire-escapes for apartments where these are now lacking, the supplying of running water on every floor, and the replacing of antiquated arrangements for the disposal of waste by modern plumbing. And in both old and new houses some degree of cleanliness and repair is enforced by the municipal authorities.

Private effort, too, has brought excellent results. Miss Ellen Collins in New York and such organizations as the Octavia Hill Association in Philadelphia have taken some of the worst houses to be found, and have transformed them into sanitary and safe homes, still cheap enough to be within reach of the very poor. Model tenement building also has extended greatly and new types have been developed.

The accomplishments of the past show what can be done, and the conditions of today call for much more that needs still to be done. Our congestion problems have hardly been touched. We still permit dark rooms in new one- and two-family houses, as these do not come under the legal definition of tenement buildings. We have not yet found a method of effectually dealing with home manufacturing in the tenements. Model management of old houses in the city is greatly needed. There is abundant room for other landlords to take up work similar in the main to what Trinity Corporation is doing in making improvements in existing houses and attempting to keep them in the best possible condition, though the situation of Trinity is peculiar in that the majority of its dwelling houses, although in down-town New York, are not tenement buildings even according to the legal definition, but are private houses for one or two families, and with very few excep-

tions were not built by the Corporation, but by other owners holding ground leases, the houses coming into the possession of Trinity Church only on the expiration of the leases.

Other cities in some cases are only now waking to the fact that they have a housing and sanitation problem, though they may have miles of unsewered streets, an intolerable drainage situation, a recurrence of typhoid every year after the height of the fly season, and overcrowding, dirt, and tuberculosis everywhere in the poorer sections.

Housing evils are ages old. Tenement buildings to shelter a number of families under the same roof were constructed in ancient Rome as early as 455 B. C., and Augustus Caesar, on account of the unsafe skyscraper buildings of his day, was obliged to make a decree limiting the height of houses to 68 Roman feet, about that of our modern New York tenements.

The problem has existed for many years in the past and it will mean work for years to come before we are within sight of our ideal, the elimination of the slum and the making it possible for every man, woman, and child to live in a decent, safe, and healthful home. But there is hope for the future. The great progress already made and the fact that public sentiment is aroused to the need for further progress both augur well for what we may expect the next decades to bring. Many of our earlier housing evils have been wiped out. Typhus and not a few of the other filth diseases of the crowded centres of former times are now practically unknown. With the passing of the present tenements built under old laws in New York and in most other cities the fire-trap multiple dwelling, and the bedrooms without windows to the outside air, will be done away with—for all time, we hope. If the same energy be applied with the same success to our remaining problems, there is ground for hope that they too may be solved and the generations of city dwellers of the years to come be able to live under happier and healthier conditions than those of today have ever known.

GRAPHIC CHARTS.

MELVIL DEWEY.

An intelligent use of comparative graphs or curves with colors and broken lines gives any statistics in a form as much clearer than figures as a photograph is clearer than any description of a person or land-

scape. One who tries to think in figures is now hopelessly out of date. The curves or graphs with the rising or falling line, showing the tendency, conveys the information in the simplest and clearest way known to the human mind. The same details in a mass of figures convey little meaning except to one skilled in their use, just as a page of music indicates the harmony only to the trained musician, or the elaborate working plans of the architect or engineer convey to the expert only the clear conception of the building or machine that is in his mind.

We have found the greatest possible gain in the use of these graphs. Over 100 distinct lines of information are given in them monthly. A page of totals is followed by a page on the same subject of gain or loss if values are involved. A zero line through the center, with lines numbered by some convenient unit up and down, shows gain when the line is above this equator and loss when it is below. In the sheets of figures from which this information is drawn, gain is in green ink, loss in lilac, receipts in red, and outgo in blue. The green, lilac, and red correspond with the initials of their meanings. We prefer colored inks as finer lines can be made and when dry they rub less, but colored pencils are often more convenient and answer very well.

For food and per capita we take inventories every 10 days and divide each month into 3 units, the fourth being 1 day for the 31 day months. The decade is much better than the week, for mere moving of the decimal point shows instantly the exact daily average. The 8 days in February is thus the one case each year requiring division. For the number of guests or any item where the daily tendency is important, the curve can follow the daily numbers, but for most things we measure off the monthly point above or below the zero line and connect it with the last month. Then all the information goes into yearly curves and later into 5-year and 10-year periods. We seldom have any need for quarters, but in schools, terms might be useful.

We cumulate most of our charts of figures, inserting a total footing the second month, so that the last figure interlined in red ink is the total from the beginning of the year, while the ink of other colors is the total of each current month. A graph of these cumulations shows tendencies very closely in comparing different years, months, or decades for the same institution, or in comparing any period for similar institutions.

The best colors, after black, are red, blue, green, and lilac. It is wise wherever gain, loss, or receipts are involved to use green, lilac, and red as the initials suggest the meanings.

Take this graph of the cost of the table per day per guest for meat, poultry, fish, butter, eggs, milk, cream, groceries, fruit, vegetables. A cook who can't interpret figures or even read English, can understand if this yellow line, which represents cream, is rising above its normal place, that one or more of four things is happening:

(1) Extravagance in the cream used in cooking and serving to guests.

(2) Use of cream for help.

(3) Allowing it to spoil and waste.

(4) Theft.

When the 10-day inventory is taken and its curve extended one column farther, a quick glance shows in which of the 10 groups of food costs are rising and need special watching.

We keep adding to the 100 sets of graphs now maintained with trifling labor, new information and we get danger signals for things that are going wrong and need correction more easily and cheaply than ever before. I can not urge too strongly on every administrator that he put into these curves every item that merits his study. While they are very useful and impressive in their clearness, compactness, and ingenuity, it is a very simple matter to make them and keep them up when one catches the general principle. It is easy to keep the forms worked out with great skill by experts. Nothing saves an administrator more than intelligent use of cumulative, comparative curves.

THE RESPIRATION CALORIMETER OF THE U. S. DEPARTMENT OF AGRICULTURE AND WORK UNDERTAKEN WITH IT.

C. F. LANGWORTHY.

Chief, Nutrition Investigations, U. S. Department of Agriculture.

The respiration calorimeter installed at the Department of Agriculture has been considerably modified and numerous experimental studies carried on with this instrument as an important part of the nutrition investigations of the Office of Experiment Stations. In its present form the respiration calorimeter differs materially from the apparatus used in earlier experiments, having been greatly improved in construction and with respect to the accessory apparatus used with it. Recently, devices have been installed for controlling, as it enters

the chamber, the temperature of the water current used to carry out the heat liberated in the calorimeter, and for automatically recording the difference in temperature between this water current as it enters and leaves the chamber. This means that some of the most difficult details connected with the calorimeter investigations are now automatically controlled and recorded.

Particular attention is being paid to studies of the comparative ease of digestion of meat and cheese used in comparable quantities. Experiments will be undertaken to test the relative value as sources of energy of culinary and table fats. Along with this work studies will be made of methods of preparing and serving such fats and of their place in the diet.

Hitherto experiments with respiration calorimeters have been made with human beings as subjects or with special forms adapted to tests with laboratory animals or farm animals. During the past year the respiration calorimeter of the Department of Agriculture has been adapted to experiments with plant life and experiments were made in which the respiratory exchange and the energy output of bananas were studied during the active ripening period. There are a great many problems of vegetable physiology of practical as well as of scientific interest which may be studied to advantage with the respiration calorimeter, and it is believed that a great advance has been made in providing new methods for the study of such questions.

The matters briefly referred to here are taken up at greater length in recent publications of the U. S. Department of Agriculture.¹

¹ The Respiration Calorimeter and the Results of Experiments with it. Reprint (Separate 542) from U. S. Dept. Agr., Yearbook 1910; and The Respiration Calorimeter: Recent Improvements and New Applications. Reprint from *Experiment Station Record*, 24 (1911), No. 7, pp. 601-606.

STATE AND MUNICIPAL DOCUMENTS AS SOURCES OF INFORMATION FOR INSTITUTION MANAGERS AND OTHER STUDENTS OF HOME ECONOMICS.

C. F. LANGWORTHY.

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The printed page, giving as it does the record of observations, the deductions drawn from them, the discussion they have caused, and the philosophy they have inspired, is the universally recognized and commonest source of information.

Books, using the term to mean the output of publishing houses, great and small, are known and consulted by everyone, in part at least because the publishers and the booksellers see to it that their wares are not overlooked, but most of all because long usage has made us all familiar with this kind of publication. The librarian classifies and catalogues books so that they are readily accessible to the reader, and to them the seeker after knowledge first turns of his own initiative or is first directed.

Periodicals constitute another great group of publications which in general are readily accessible and in which the student commonly seeks information. Possibly because they must be purchased and so have a recognized money value, though without doubt chiefly because periodicals are a well organized and well known group of publications, they are generally well cared for in libraries and well classified and indexed. It follows that a particular article may be readily found from catalogues or from some standard work of reference, such as Poole's *Index of Periodical Literature*, to cite a familiar example, though one more concerned with general literature.

We may group together publications of learned societies and scientific societies and similar associations as a third great division. Some of this literature is sold through the regular channels of trade but much of it is distributed without cost to society members, to libraries, and less commonly to individuals. Perhaps in part because learned societies have existed so long that they have acquired the dignity of age, their publications are valued by the librarian, are usually well classified by him, and accordingly are fairly well known to the expert and to the teacher, though much less commonly to the student.

The publications of private organizations should also be mentioned, namely, such organizations as the Russell Sage Foundation, the Car-

negie Institution of Washington, and the Rockefeller Institute for Medical Research. These organizations justly rank with learned societies, and their publications are appreciated at their full value by the expert and the advanced worker.

The great number of publications of private organizations, for instance the reports of national conventions of various trade organizations, constitute a source of information which is little known, even to the specialist, and perhaps seldom consulted except by those interested in the manufacture or the sale of special products. Simply as an illustration of this class of literature, mention may be made of the report of a convention of the National Association of Master Bakers held in Baltimore in 1910. As is usually the case with such reports, the bulk of the material included is of interest only to the organization, yet there is one paper, Report of Association Fellowship Student at University of Kansas, by H. A. Kohman,¹ which gives the details of some interesting laboratory studies of bread making problems, a paper which should not be overlooked by students of this subject.

In a paper prepared for the American Home Economics Association² two years ago the attempt was made to point out the importance of another group of publications usually passed over by the student and neglected by the librarian, yet appreciated by the expert and advanced worker, and really containing material of the greatest value, namely, the documents published by the different branches of the general government. Each one of the other groups of publications referred to would furnish material for a paper. In the following pages attention is directed to a large group of publications which, like government documents, can generally be had for the asking, and like them are too often stored or placed on out of the way shelves by the librarian and neither classified, catalogued, not consulted, yet containing an enormous amount of interesting and valuable material. These are the publications of States and municipalities.

That such publications cover a wide range of subjects most of us are aware. Nevertheless, it may be instructive to consider the list in some detail.

Massachusetts, for instance, issues publications which have been grouped under the following heads: Constitution and constitutional conventions; executive and staff; inspection and regulation, which would include the Board of Agriculture reports, the reports of the

¹ Rpt. Thirteenth Conv. Nat. Assoc. Master Bakers, Baltimore, 1910, p. 29.

² JOUR. HOME ECON., I (1909), pp. 227-252.

State Board of Lunacy and Charity, the Dairy Bureau, and the Bureau of Statistics of Labor; institutions, which include agricultural experiment station publications as well as reports of educational, penal, and corrective institutions; judiciary; and miscellaneous documents; with the colonial and provincial reports grouped in an appendix. This classification is quoted from R. R. Bowker's³ standard work of reference dealing with state publications, which gives a list only of publications and makes no attempt to give information as to the contents of the documents listed. Nevertheless, it is of great value as it is the only published list of the sort which includes all the States of the Union.

A reference work dealing with state documents which is of the greatest importance is the *Index of Economic Material in Documents of the States of the United States*,⁴ by Adelaide R. Hasse, prepared for the Department of Economics and Sociology of the Carnegie Institution of Washington and published by that Institution. A volume of this series is devoted to each State and it is the author's purpose to list under appropriate headings all the documents issued up to 1904. For instance, the Illinois volume includes documents from 1809-1904. The States so far included are California, Delaware, Illinois, Kentucky, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont, other volumes being in progress. It is the intention to give a complete list of the public documents of each State. The various documents are not completely indexed, only the economic material having been selected for this purpose. As is perhaps inevitable, the index is more or less selective. Nevertheless, the work as a whole is the only published guide to the contents of state documents and gives information which can not be readily found anywhere else.

The usefulness of the documents listed may be gathered from some of the headings followed in classifying them, as, for instance: Industries, such as bakery trade, canning, clothing trades, dairy industries, etc.; education; labor, with such subdivisions as child labor, wages, house industries, and cost of living; maintenance, which includes charities, public institutions, and related subjects; water supply; natural resources; population, betterment; sewerage; and many others.

Appreciating the great importance of state documents, the Library

³ *State Publications—A Provisional List of the Official Publications of the Several States of the United States*, New York, 1908, pp. 28-59.

⁴ *Index of Economic Material in Documents of the States of the United States*, Vols. 1-10, 1907-1910, Baltimore, Md.

of Congress has recently commenced the publication of a monthly bulletin giving the documents received by the Library, classified by States under headings such as agriculture, statistics, etc., and so annotated that some general idea at least may be obtained of the character of the contents of the documents. This publication⁵ should be in the hands of everyone who wishes to follow literature of this character. It is issued by the Division of Documents of the Library.

That the institution manager as well as other students of Home Economics can find very important material in State and municipal publications, and oftentimes information which could not be found anywhere else, can perhaps best be demonstrated by citing some particular instances covering a rather wide range of topics out of the many which might answer the purpose equally well or maybe better. The material has been grouped under the following heads: Expenses and expenditures; water supply and sewage disposal; building materials and their use; supplies and equipment; housing systems and other similar problems; institution dietetics and other food and nutrition topics; problems of labor and service; and educational opportunities and courses of instruction.

EXPENSES AND EXPENDITURES.

The question of expenses and expenditures is one which first confronts the institution manager or the student of institution problems. If one desires information on this subject it must be sought in the reports of the various institutions which give an account of the income and expenditures, and nearly every institution publishes at least an annual or a biennial report. If it is desired to make a comparison between the cost of food or other supplies for the current year in comparison with other years, reliable statistical data can be found in the publications of the State Bureau of Statistics or similar department which most States maintain. For instance, a recent annual report of the Bureau of Statistics of New Jersey⁶ contains a paper on the Cost of Living in New Jersey, by W. C. Garrison, which gives food prices and other items. The recently published report of the Massachusetts Bureau of Statistics,⁷ entitled Report of Commission on the Cost of Living, is a very exhaustive inquiry into the causes of the high cost

⁵ Monthly List of State Publications, Washington: Govt. Printing Office.

⁶ Ann. Rpt. Bur. Statis., N. J., 1909, pp. 141-151.

⁷ Rpt. Mass. Bur. Statis., 1910, pp. 752 (House Doc. 1750).

of living and discusses industrial conditions, market conditions, the marketing of commodities, wholesale and retail prices, and other similar problems.

Other instances might be cited as the number of articles of this sort is large.

WATER SUPPLY AND SEWAGE DISPOSAL.

Questions of water supply and sewage disposal are of importance to the institution manager and to everyone else. In collecting information on such a subject state and municipal documents can not be overlooked. Existing conditions and plans tried in many institutions can often be learned by a study of annual reports, which quite commonly give plans of new buildings and descriptions of other equipment, particularly anything which has been recently installed. The bulletin⁸ of the New York State Department of Health for March, 1907, contains an interesting paper on The Pollution and Self-Purification of Ice. Mention may also be made of the numerous reports of original work along various lines carried on at the Water Experiment Station of Lawrence, Massachusetts, and reported in the publication of the Massachusetts State Board of Health.

The public institution can often control conditions as the community can not, since it equips its own water supply and sewage disposal system. As a publication⁹ bearing on this subject may be mentioned A Preliminary Report on the Artesian Well System of Georgia, by S. W. McCallie, published by the Geological Survey of Georgia.

A Check List of Works Relating to the Water Supply, Sewers, etc., of the City of New York in the New York Public Library¹⁰ contains titles of reports and other documents. This it is interesting to consult not alone because it contains titles of useful works, but also because it furnishes a good illustration of the careful indexing and cataloguing of municipal documents.

BUILDING MATERIALS AND THEIR USE.

The intelligent and economical construction of buildings should be based upon a knowledge of building materials. The Geological Sur-

⁸ Mo. Bul. N. Y. Dept. Health, 23 (1907), No. 2, pp. 2-6.

⁹ Bul. N. Y. Pub. Libr., 5 (1901), No. 4, p. 133.

¹⁰ Ga. Geol. Survey Bul. 7, 1898.

vey of Georgia has published an exhaustive report¹¹ on the Marbles of Georgia, by S. W. McCallie, which contains the results of the chemical and physical examination of marbles as well as much other interesting data. A bulletin¹² of the Wisconsin Geological and Natural History Survey, entitled *Building and Ornamental Stones of Wisconsin*, by E. R. Buckley, also contains much information of general interest.

In the same connection may be mentioned *The Uses of Hydraulic Cement*,¹³ by F. H. Eno, and *The Manufacture of Roofing Tiles*,¹⁴ by W. G. Worcester, both published by the Ohio Geological Survey.

The use of concrete in the construction of farm buildings is discussed together with a number of other questions in an article¹⁵ by R. M. Washburn in an annual report of the State Dairy and Food Commissioner of Missouri.

SUPPLIES AND EQUIPMENT.

The equipment of an institution or other enterprise, like the plans followed in the construction of buildings, is very commonly described in annual reports and similar publications. Of special interest are detailed discussions of particular sorts of equipment. For instance, in an article on *Barn Plans and Conveniences*, by R. M. Washburn, in an annual report¹⁶ of the State Dairy and Food Commissioner, Missouri, much information is presented which is of interest in this and in other connections as well, for example, the comparative value of shingles and prepared roofing, the gasoline engine and the approximate cost of different sizes, the equipment of mills for grinding feed or other materials, and the use of concrete construction materials which has been mentioned in another section. This article also takes up the problem of a sanitary dairy and in this connection gives detailed directions for the installation of a power laundry of a size suitable for a dairy farm.

The question of laundry equipment is discussed by Miss Ilena Bailey

¹¹ Ga. Geol. Survey Bul. 1, 1907, 2. ed., rev. and enl.

¹² Wis. Geol. and Nat. Hist. Survey Bul. 4, 1898, Econ. Ser. 2.

¹³ Ohio Geol. Survey Bul. 2, 1904, 4 ser.

¹⁴ Ohio Geol. Survey Bul. 11, 1910, 4. ser.

¹⁵ Ann. Rpt. State Dairy and Food Comr. Mo., 1 (1907), p. 145.

¹⁶ Ann. Rpt. State Dairy and Food Comr. Mo., 1 (1907), pp. 129-165.

in a bulletin¹⁷ of the Missouri State Board of Agriculture, in a report of the Missouri Home Makers' Conference Association.

The New York State Water Supply Commission has quite recently published a pamphlet¹⁸ dealing with water power for the farm and country home, by David R. Cooper, which discusses the use of turbines and the older types of water wheel as well as the generation of electric power by means of water power. The application of the power to domestic processes, including cookery, to the running of laundry machines, and in very many other ways in the home and dairy and on the farm is also considered.

If one is interested in the relative value of fuels, such documents as Report on the Coals of the Three Forks of the Kentucky River, by J. M. Hodge, published by the Kentucky Geological Survey¹⁹ is worth attention, as it contains a large number of analyses in addition to descriptive matter and miscellaneous information.

Systems followed in the purchase of supplies, including food, and much data relating to the matter of handling, storing, and issuing of supplies, and the relative economy of different systems can be gathered from institution publications. The question of the home production of vegetables, dairy products, hay, and other supplies involves the same agricultural questions as arise on any farm, and others as well, as, for instance, the opportunity offered for benefiting the inmates by having them take part in out of door manual labor. Agricultural problems are considered in publications of the state departments of agriculture, as are others of general interest, facts which the institution manager should know, as well as his farm superintendent and the student who hopes to fill some such position.

HOUSING SYSTEMS AND OTHER SIMILAR PROBLEMS.

If the student wishes to know the success of various systems of housing, information can be found in reports of institutions which discuss the cottage system in comparison with the large building, and related topics. In the same way it is to reports of public institutions that one must turn for information regarding various systems of management which are in use.

¹⁷ Water Power for the Farm and Country Home, N. Y. State Water Supply Com., Albany, 1911.

¹⁸ Monthly Bul. Mo. Bd. Agr., 8 (1910), No. 2, pp. 33-41

¹⁹ Ky. Geol. Survey Bul. 11, 1910.

INSTITUTION DIETETICS AND OTHER FOOD AND NUTRITION TOPICS.

The question of institution dietetics is naturally one of great interest and it is one subject on which many papers have been published. It is interesting to note that one of the earliest American investigations on such a topic, namely, *A Report on Food and Diet, etc.*,²⁰ by John Stanton Gould, which summarizes a large amount of data regarding food and other conditions in American public institutions, was conducted and published in 1852 under the joint auspices of the Commissioners of Immigration and the Board of Governors in the New York Almshouse Department.

Not only do reports of public institutions contain information as to the amounts of food supplied and its cost, but also regarding the character of the food and methods followed in preparing and serving it. The publication of menus is quite usual.

Of special investigations may be mentioned the extended series of dietary studies carried on in New York state hospitals for the insane by Professor W. O. Atwater, and published in the annual reports²¹ of the New York State Commission in Lunacy.

These papers report an extended series of dietary studies, discuss the results at length, and propose dietary standards. One of their most valuable features is the collection of tables of quantities of food materials which may be supplied for some given material taken as a standard, for instance the amount of different vegetables or other foods which may be substituted for 100 pounds of potatoes in making up menus. Included in this report is a paper, *Recipes for Cooking and Suggestions for Improvement in Kitchen Administration*,²² by Maria Daniell, which gives a large number of recipes in quantities sufficient for 100 persons. In these reports Professor Atwater has presented a mass of figures and observations, discussed many problems, and drawn many deductions. No student of institution dietetics can afford to be ignorant of the details of these investigations.

²⁰ *A Report on Food and Diet, with Observations on the Dietetical Regimen, Suited for Almshouses, Prisons, and Hospitals; also on Heating, Ventilation, etc., with Practical Recommendations.* New York, 1852.

²¹ 11th Ann. Rpt. N. Y. State Com. in Lunacy, pp. 190-566; 13th Ann. Rpt. N. Y. State Com. in Lunacy, pp. 38-322, Albany, 1902.

²² *Recipes for Cooking and Suggestions for Improvement in Kitchen Administration.* 13th Ann. Rpt. N. Y. State Com. in Lunacy, pp. 145-191. Albany, 1902.

In one of the reports²³ of the Institutions Commissioner of the City of Boston, Mrs. Ellen H. Richards and Sarah E. Wentworth report the results of dietary studies in nine public institutions in Boston, and make a number of recommendations based on their work.

In connection with extended investigations on the Etiology of Pellagra,²⁴ a disease, which as everyone knows has been attributed to the eating of corn meal in quantity, or more specifically, to the eating of spoiled corn meal, dietary studies were made and included in the reports published in bulletins of the Illinois Board of Health. The work was carried on by W. H. Buhlig, and by J. F. Siler and H. J. Nichols. No causative relation between the use of corn meal and pellagra was shown by the work.

It is interesting to note that Buhlig reported tests with moldy corn meal to ascertain the resistance of molds to heat and whether they would survive in cooking processes. He found that corn meal mush and hominy, made in the usual way followed at the institution, by boiling for about 2 hours, was sterile.

The preparation of food is not infrequently taken up in documents published under state auspices. In a paper on Corn Oil—Its Possible Use as an Adulterant in Lard and Its Detection,²⁵ by W. McPherson and W. A. Ruth in the Annual Report of the Ohio Dairy and Food Commissioner for 1906, tests are reported of the culinary qualities of lard and corn oil mixtures. The paper is also valuable as a contribution to food chemistry and as a source of information regarding corn oil—a food material of growing importance.

The paper, *How to Can Fruits and Vegetables on the Farm*,²⁶ by Mrs. Mabel E. Moore, published by the Missouri Board of Horticulture, as a reprint from its Annual Report for 1908, is worth the attention of the institution manager, since it deals with the question of canning in quantity under home rather than under factory conditions.

Most of the documents referred to have been issued under state auspices. A document prepared in this way, published by the State Board of Charities of New York, in 1906, and printed by the Department of Public Charities of New York City in the same year, is the

²³ Report to his Honor the Mayor, and to the Institutions Commissioner, on the Dietaries of the Nine Institutions of the City of Boston. Ann. Rpt. Inst. Comr. City of Boston, 2 (1897), pp. 206-213.

²⁴ Ill. Bd. Health Mo. Bul., 5 (1909), No. 7, pp. 417-478.

²⁵ Ann. Rpt. Ohio Dairy and Food Comr., 21 (1906), pp. 18-23.

²⁶ Ann. Rpt. Bd. Hort. Mo., 2 (1908), pp. 202-214.

excellent summary, *Dietaries for Charitable Institutions*, by Florence C. Corbett, which discusses institution food problems and suggests ways for solving them.

The institution problem is of necessity on a larger scale than that of the home, yet the question must often arise in one case as in the other—is it cheaper to cook foods or to purchase them ready cooked? One of the most careful studies of the relative cost of the two systems is that carried on by the Committee on Domestic Service of the Boston Branch of the Association of Collegiate Alumnae, entitled *The Relative Cost of Home-Cooked and Purchased Food*, and published in the *Massachusetts Labor Bulletin* for August, 1901.²⁷

Food inspection, dairy inspection, and similar work make up a large part of many state and municipal documents. Of recent legislation enacted on this subject may be mentioned *Rules and Regulations Governing Butcher Shops and Meat Stalls*²⁸ in Porto Rico.

The storage of food almost inevitably involves some loss and accurate information regarding the character and extent of such losses under different conditions is needed by the institution manager. The Kansas Board of Health has reported studies by J. T. Willard²⁹ of the losses involved when flour is stored in sacks and when butter is stored under different conditions such as are usual in the butter trade.

The question of the protection of the manufacturer of good goods and of the people by means of legislative enactments for the suppression of adulteration of foods, drugs, paints, oils, and other supplies is a very important one, and one which is growing very rapidly in the amount of attention it is receiving. Documents which report such work are very numerous and commonly include the publications of the state board of health, the report of the state dairy and food commissioner, or the bulletins of the state department of agriculture or the agricultural experiment station, as the carrying out of such inspection work is usually entrusted in the several States to one or another of these agencies. The publications cited give not only an idea of the character and extent of the work (and it is interesting to note that improvement in the purity of the articles considered is very apparent after the laws have been in force for a time) but also include many discussions of food hygiene and general food problems.

²⁷ Mass. Labor Bul. 19, 1901, pp. 67-98.

²⁸ *Rules and Regulations Governing Butcher Shops and Meat Stalls*, Porto Rico: Dept. Health, Charities, and Correction, 1911, p. 6.

²⁹ Bul. Kans. Bd. Health, 7 (1911), No. 1, pp. 9-14.

A paper, *Simple Household Tests for the Detection of Adulteration in Foods*,³⁰ was published a few years ago by the Utah Dairy and Food Commission. A later publication on this subject by E. H. S. Bailey is entitled *Some Kitchen Tests to Detect Adulterations in Common Foods*.³¹

Closely related to the pure food and drug work is that concerned with the inspection of dairies, bakeries, food manufactories, laundries, etc., of interest to the public institution housekeeper as well as to the housewife, since each depends in large measure upon the manufacturer.

The reports referred to above contain many articles on such topics, most of them having to do with conditions under which food products are manufactured.

The municipal ordinances, rules, and regulations regarding the handling and care of food, food protection, food manufacture, and other topics which have to do with clean food from a trade standpoint are published in numerous municipal or state documents. It is interesting to note that the U. S. Public Health and Marine Hospital Service collects and reprints these contributions to public health. For instance, a recently published summary³² contains the rules and regulations adopted in American cities since January 1, 1910.

An extended study³³ of conditions in public laundries and other factories was reported in the Massachusetts State Board of Health Report for 1906.

Questions which have to do with the conditions of manufacture of canned corn and other canned goods are included in the report of factory inspection published in annual reports of the Bureau of Factory Inspection of the New York Department of Labor. Ventilation, sanitation, and other questions of hygiene are considered, as well as hours of labor and related matters. In general, it is in reports similar to those just enumerated that matters pertaining to ventilation and other questions of hygiene are considered.

Food hygiene is one of the very important divisions of food and dietetics. An interesting question was studied by H. E. Barnard and H. E. Bishop under the auspices of the Indiana State Board of Health,

³⁰ Utah Dairy and Food Com., 1906, p. 15.

³¹ Bul. Dept. Food and Drug Insp. Mo., 3 (1911), No. 1-3, pp. 34-42.

³² Pub. Health and Mar. Hosp. Serv. U. S., Pub. Health Rpts., 26 (1911), No. 47, pp. 1842-1849

³³ Mass Bd. Health Rpt., 1906, pp. 449-619.

namely, The Solubility of Zinc Electroplate in Lemonade and Citric Acid Solutions,³⁴ the work being undertaken to ascertain the possible harmfulness of galvanized iron containers for acid materials. As a result of their work, the State Board of Health issued a rule forbidding the use of such containers in the manufacture and storage of acid drinks.

The Effect of Cold Storage upon Domestic Fowls³⁵ was studied under the auspices of the Buffalo Department of Health, by W. G. Bissell, and the results published by the Board in a paper with the above title, and summarized in one of the Buffalo Sanitary Bulletins. This work is a valuable contribution to the subject of methods of handling poultry for cold storage, etc. An excellent chemical study of drawn and undrawn poultry in cold storage, by W. F. Boos, and a bacteriological study of such poultry, by H. R. Brown, were reported in the Massachusetts State Board of Health Report for 1907.³⁶

H. E. Barnard has published in a report of the Indiana State Board of Health a study of The Bacterial Condition of Protected and Unprotected Foods at Restaurants, Meat Markets, Grocery Stores, Bake-shops, and Fruit Stores,³⁷ in which he reaches the conclusion that foods kept in glass cases are practically free from dust and accompanying bacteria, while food on exposed tables and racks is surrounded by air heavily laden with dirt and micro-organisms. His study of the effects of cleanliness of floors and utensils and other related data are of interest in the institution and indeed wherever food is handled or stored.

Similar work is included in a bulletin of the Texas Board of Health, which discusses the general problem and briefly refers to a bacteriological study of samples of commercial milk, grapes, and berries exposed for sale on the sidewalks without protection from flies and street dust. J. S. Abbott,³⁸ who made this study, states that in every case pathological bacteria were found. Numerous other similar studies might be cited.

Much has been written about the possibility of the transmission of tuberculosis by means of milk used as food, and the possibility of transmission of animal diseases in general to man. All who are interested in such questions should read the article on Animal Diseases

³⁴ Ann. Rpt. Bd. Health Ind., 27 (1908), pp. 254-256.

³⁵ Buffalo Sanit. Bul., n. s., 2 (1909), No. 3, pp. 1, 2.

³⁶ Mass. Bd. Health Rpt., 1907, pp. 263-283, 285-336.

³⁷ Ann. Rpt. Bd. Health Ind., 27 (1908), pp. 517-523.

³⁸ Bul. Tex. Bd. Health, 4 (1910), No. 11, pp. 16-18.

Transmissible to Man,³⁹ by T. Smith, published in a bulletin of the State Board of Health of Massachusetts. It is interesting to contrast the calm and judicial statements of such an authority with the loose and biased statements which are so often encountered.

The list of similar articles on food topics in state and municipal documents is a long one and many other papers might be cited.

Bibliographies are always a help to the student and are often almost indispensable. Public libraries quite commonly publish bibliographies or check lists, sometimes as separate documents and sometimes included in library bulletins, or other similar documents. Several years ago the New York State Library issued a *Bibliography of Domestic Economy*,⁴⁰ limited to works in English, which includes titles on shelter, heat, light, ventilation, clothing, administration, sanitary precautions, cleaning, and other such subjects as well as on economics of consumption, domestic economy, food, cooking, kitchen, dining room, gastronomy, household management, etc.

The list⁴¹ of books on domestic science in the Boston Public Library, which has been recently compiled and published, is a classified list of titles of a very large and fine collection of works on this subject arranged under the following headings: Domestic economy, household management; food, nutrition, diet, digestion; beverages; cookery; the table, gastronomy, dining, table decoration, table service, entertaining; and dress, clothing. The institution dietitian as well as the teacher and the student will find this list invaluable. It is interesting to note that the Boston Public Library contains as a part of the collection included in this list the books, chiefly on domestic science and cookery, collected by Miss Maria Parloa and bequeathed by her to the Library.

A bibliography on hygiene published in 1894 by the library is also of interest for the obvious bearing of this subject on the many problems of institutions management.

The New York Public Library has published a list⁴² of the works it possesses on prices, which includes titles on the regulation of prices, theory of prices, and other similar subjects, as well as titles of books and articles dealing with the prices of foods and various other commodities.

³⁹ Monthly Bull. Bd. Health. Mass, n. s., 4 (1909), No. 12, pp. 264-276.

⁴⁰ N. Y. State Libr. Bul. 52, 1901 (Bibliography 22).

⁴¹ A List of Books on Domestic Science in the Public Library of the City of Boston, Boston, 1911, pp. 78.

⁴² Bul. N. Y. Pub. Libr., 6 (1902), No. 4, p. 115.

PROBLEMS OF LABOR AND SERVICE.

The total number of articles and volumes which have to do with the statistics of labor, wages, and all that pertains to this great question is large, as many States have bureaus of labor under one name or another. Aside from its obvious relation to institution management, such work has a very important sociological relation to the subject, as it has to do with many factors which affect the lives of inmates of institutions for charity and correction before they enter the institution, and which may be the cause of their present condition.

The question of adequate help is of great importance to the housekeeper in the institution as well as in the home.

A contribution to the literature of the subject is *The Household Servant Problem in Maine*,⁴³ a report of an exhaustive inquiry, which is published in a recent report of the Bureau of Industrial and Labor Statistics for the State of Maine, and is full of ideas and good sense in addition to being a carefully compiled record of facts bearing upon the case.

EDUCATIONAL OPPORTUNITIES AND COURSES OF INSTRUCTION.

The student of institution management, like other students of Home Economics, is interested in the general field of education and especially in the courses which are offered in different institutions which are needed for training in this special subject.

In many States reports are published which outline courses and give much other information regarding the work in secondary schools, normal schools, colleges, and universities. Furthermore, state documents contain an enormous number of published reports which discuss educational questions. The reports of the activities of women's institutes and farmers' institutes, and of other institute and extension work, are very commonly published as state documents. Reference has already been made to the report of the women's institutes in Missouri, and mention may also be made of a similar publication reporting the women's institute work in Illinois.

CONCLUSIONS.

The material here brought together by no means exhausts the subject. Indeed, it cites only a very small proportion of the papers which

⁴³ Ann. Rpt. Bur. Indus. and Labor Statis. Me., 24 (1910), pp. 311-393.

might be mentioned and indicates only a few of the uses which may be made of state and municipal documents. However, the illustrations selected are perhaps sufficiently numerous to make clear to the student of institution management and of other branches of Home Economics the value of literature of this character.

It would without doubt be conceded that the class of literature under consideration is generally neglected, and if we are also agreed that it is valuable, it logically follows that some method should be devised for collecting and making use of the material. If students could be induced by their instructors to look over regularly and systematically the public documents of all sorts received in the libraries to which they have access and list articles which they consider of value, and perhaps abstract some of the more important papers, they would gain knowledge as to methods of really using libraries as well as special information of use in connection with their work. If such a plan were followed in a number of institutions, and some method could be found for publishing the bibliographies and notes, the work might be made of general use.

Then too, it would be of great value in training the student if he were assigned some topic for special study, for an essay, or for a thesis, which would necessitate consultation of public documents and other literature too often passed by for the more readily accessible text-book and general work of reference. Some one, at least, of our large and well equipped colleges or universities might well assign to one of its librarians the task of collecting documents of the sort under consideration and preparing bibliographies of publications and articles of interest to its Home Economics department.

In Home Economics, as in all other lines of work, we need laboratory research and other advanced work. It is also true that progress would be more easily made and more would be accomplished if we were thoroughly familiar with what had been done in the past and recorded for our information. The person who has the patience to collect and digest data already reported and made available will often render as great and as permanent service to his chosen subject as the successful investigator. He has an advantage in that he does not require expensive laboratory equipment, but only books and paper and pencil. Even the books he need not buy if he works with those we have been considering, for States and cities will in almost every case willingly send them gratis to libraries on request and very often to individuals.

PRINCIPLES OF MANAGEMENT APPLIED TO SCIENTIFIC MANAGEMENT.

ROYAL R. KEELEY.

Tabor Manufacturing Company, Philadelphia.

Under the present day method of scientific management, industrial plants are increasing their output, raising their wage schedule, and lowering the sale price of their product.

This strikes at the root of the high cost of living. Increased production of necessities and increased wages with which to buy them means better conditions for the employee and better business for the employer.

The change is being wrought by expert direction of work. The wastefulness of the old method, which left organization of work to untrained workers, was first recognized by Dr. Frederick W. Taylor. Scientific management is based on his experiments in the best method of doing given pieces of work.

Specialists are in charge of outlining and apportioning tasks, and of reducing instructions to writing wherever possible. The task and bonus system, which is fundamental in scientific management, consists in paying the workman a reward or bonus for doing a specified quantity of work in a specified way.

Scientific management does not aim to obtain excessive speed, but to eliminate waste of time and strength. It cultivates in the workman mental alertness and self-confidence through accurate work. He does not work harder but more efficiently.

The system saves the management a mass of detail.

Educational institutions are as yet far behind industrial plants in scientific management, while their possibilities for improvement are even greater. The various departments should be correlated; office routine should be standardized; the purchase and handling of supplies should be reduced to a system. Useless labor should be eliminated in all routine work. The efficiency of buildings and equipment should be extended through longer hours of use.

We have no administration in our colleges and universities as this term is applied in industrial organizations, except in our football teams. They achieve alertness, dexterity, and activity through motion study, team work, and attention to health and food. Our institutions as a whole would gain by similar organization.

Bibliography suggested by Mr. Keeley's paper: Van Nostrand Co., New York City: Gilbreth, Motion Study; McGraw Hill Co., New York City: Taylor, Principles of Management and Shop Management; Going, Principles of Industrial Engineering; Evans, Scientific Management; Gantt, Work, Wages and Profit; Day, Industrial Plants; *Engineering Magazine*, New York City: Brander, Scientific Management.

MARKET INSPECTION WORK CARRIED ON BY THE WOMEN'S MUNICIPAL LEAGUE.

AMY ALDIS BRADLEY.

Chairman Market Committee, Women's Municipal League, Boston.

The Market Committee of the Women's Municipal League of Boston about two and a half years ago made a preliminary investigation into the condition of the markets and provision shops in Boston, with a view to undertaking further work for their improvement.

The best shops were found, in the main, to be clean and sanitary, but the shops in the poorer parts of the town were often very dirty and sometimes disgustingly so. It was common to find walls incrustured with dried blood or fish scales, floors thick with dust and dirt, mingled with scraps of meat, feathers, rotten vegetables, and fruit skins, and the corners piled high with wood, old clothing, newspapers, and rubbish. In some cases, when sweeping was attempted, dust, garbage, and all was thrown into closets, where it remained indefinitely. Living rooms frequently opened out of these shops, and in these dirt, disorder, and smells added to the unsanitary conditions. The board of health, after conference with the market committee, gave the appointment of an unpaid market inspector to a woman selected by the Committee, her salary for three months being provided by the League and South End House.

The object of the League was to show the value of inspection which should be thorough and which should aim at the education of both dealers and consumers in the importance of cleanliness.

The need of this education is shown by the following incident: During a visit of our inspector, a shopkeeper was selling soda water to a group of school children, twenty of whom drank in succession from one unwashed glass. She remonstrated, and with a desire to please

her the man seized the glass and rinsed it in water that had just been used for scrubbing the floor.

In spite, however, of the difficulties arising from the ignorance of the shop keepers, our inspector succeeded in bringing about some improvement in about two-thirds of the seventy shops under inspection. This was effected mainly through tact and kindness. Our inspector seldom had to use the authority of her official position, although without it her work would have been much harder. As an illustration of the improvement which she brought about I may mention one shop where the proprietor was at first somewhat unresponsive, although, at our inspector's suggestion, he gathered from the corners of his shop enough garbage to fill five barrels. A few weeks later, after she had made him several visits, he showed her with pride his shelves covered with clean white oil cloth.

Through South End House our inspector had opportunities for interesting women who buy at the shops and was able to influence them as well as the dealers. The result of this inspection was so satisfactory that we later engaged an inspector by the year who was given the same appointment by the Boston Board of Health. She is still working for us.

In the autumn of 1909, at the Boston 1915 Exposition, the Market Committee had an exhibit—showing models of a dirty shop and a clean one. This awakened so much interest that later in the winter, in conjunction with other exhibits of the Women's Municipal League, it was shown at 13 settlement houses and the following year at public schools. The interest shown in our exhibit was amazing. At one of the settlements over 1000 persons visited it. Talks were given and so many of the poor women living in tenements showed keen interest in the condition of the provision shops in their neighborhoods that the market committee formed the plan of organizing groups of these women in different parts of the city to do active work among the markets. The members of these groups, called "tens," keep watch of the shops at which they trade and send reports to their respective chairmen, who, in turn, pass them on to the inspector, and she visits them herself as often as is necessary. The form of report is as follows:

Name of shop.....
 Name of proprietor.....
 Address.....
 1. Is there a place where those from whom you buy can wash their hands?

2. Is the food protected from dust and flies?.....
 - (A) By glass?
 - (B) By netting?.....
 - (C) Does the netting touch the food?
3. Are the doors and windows screened?.....
4. Is all the food raised 18 inches from the floor?
5. Do the buyers handle the bread, candy, etc.?.....
6. Is the milk kept in cans?.....
7. Would the floor soil your dress?.....
8. Is there a living room back of the store?.....

Is there a toilet on the same floor as the store?.....
9. Are receptacles provided for the garbage?.....
10. Remarks on cleanliness
- Reported by.....
- Address.....
- Date.....

It is now about a year and a half since these groups, or "tens," of women were started and there are now 187 women belonging to them. They are most helpful in spreading interest and knowledge among buyers, and their influence undoubtedly extends far beyond the women who compose them. As they increase in numbers they will, we believe, prove a potent means of educating the buying public.

In markets, as in governments, what the people want they will get. Shops cannot be expected to provide more than their customers demand. If the public is satisfied with dirty shops as with dirty governments it will get them. When it persistently demands something better it will get something better. We therefore feel that we are right in laying our emphasis on education—the education of both the buyer and seller in the principles of cleanliness and sanitation and their practical application. The response to our efforts in this direction has been far beyond our expectations. Interest in the cleanliness of provision shops among all classes of women has been amazing and we find this interest spreading along other and kindred lines of work which we have recently undertaken, such as the investigation of candy shops and ice cream factories.

At the present time about 450 shops are on our list, and of these 320 are frequently inspected.

An important part of our work is to have a thorough understanding of the actual methods of handling food in Boston and also what the methods should be. Information as to the ideal methods is not easy to obtain. So far as we can find there is hardly any published information on the subject, and *no* authorities. The task before us

reminds me of a story which I have heard attributed to Mr. W. D. Howells. Mr. and Mrs. Howells were having a discussion as to the proper use of a word. Mr. Howells had used it in a sense which Mrs. Howells did not think correct. "Look it up in the dictionary," said Mrs. Howells. The first example of its use that Mr. Howells read from the dictionary gave it exactly as he used it. "Who is the authority given?" said Mrs. Howells. "W. D. Howells," said he. So it is with markets. We must be our own authorities. We must ourselves gather a body of knowledge based upon what we see with our own eyes and hear with our own ears, combined, of course, with all we can gather as to methods in use elsewhere and all the incidental help we can get from scientific men as well as from practical dealers. The fact, however, that there is no collated body of experience to guide us should make us especially cautious in recommending changes.

As to the actual conditions in Boston, we already have a fairly clear idea. The greatest difficulties are presented by the small shops in poor neighborhoods, such as I have already described. These shops are not only sometimes filthy, but the food is left uncovered; it is black with flies in summer; it is fingered by customers with dirty hands, who punch holes in the crust of the loaves with their black fingernails to test the bread, and who turn over the cakes and feel the meat, fruit, and candy. In some instances where dealers have a better standard than their customers, and have tried to keep their goods covered, they have found that sales were thereby lost. One dealer put up a fence across his shop to keep his customers from handling the food, but some of them objected so strenuously that he had to let them inside. Fortunately in other cases improved cleanliness has led to improved trade, so the outlook is not wholly discouraging.

It is not surprising that these shops are sometimes exceedingly dirty, when one considers the small profits made. A fruit business netting \$10 a week is considered "good." When people are barely able to eke out a living, even the small outlay required for ordinary cleanliness is difficult to provide. The great hindrance to sanitary conditions is that the small shops are so numerous and competition so keen that the owners barely make a living and really cannot afford to keep clean. In the interest of the public health, the number of small shops should be diminished by helping the poorest shop keepers into other occupations and preventing others from taking their places. Done in this way and gradually, the change would not result in hardship to the helpless, but would give them time and opportunity to adjust themselves.

We do not yet know enough to form an opinion as to just how this could be brought about. Licensing may help towards the solution by obliging each shop to maintain a certain standard of cleanliness in order to keep its license. This is already done where milk is sold, and it seems as if it might be feasible to extend the plan to all provision shops.

In some foreign cities central markets are maintained in different districts by the municipality, but whether this plan, carried further and excluding all other provision shops, would suit American life is at least an open question. That plan has not been tried here, so far as I know. It is clear that in Boston the number of market inspectors is wholly inadequate. There are, at present, but three for between 3000 and 4000 provision shops. In order to make the rounds as often as they are supposed to, each inspector would have to visit 70 shops a day—manifestly a physical impossibility. More inspectors—enough inspectors to make the work educational and not merely perfunctory—is one of the first necessities.

The most important factor, however, in any improvement, must be the active interest of every housekeeper and mother in the community.

CONCERNING INSTITUTIONAL MANAGEMENT.

SARAH LOUISE ARNOLD.

Dean of Simmons College.

Instruction in institutional management is still in its infancy. In our conferences we must either prophesy in defence of our favorite theories or report progress in our varied experiments. We have not yet accumulated sufficient experience to enable us to generalize with conviction. I have chosen to give a running report of the experience at Simmons College, first with reference to the course of study outlined, and, second, to the demands which have come from the field.

It has been evident from the beginning that the institutional worker most in demand is the woman of maturity and experience, who has developed in other fields the qualities which are essential to success in institutional administration. It is also evident that such women are likely to desire a brief course of instruction, inasmuch as their need of self maintenance is usually pressing; and further, the time which is given to study necessarily deprives them of income and thus augments the cost of instruction.

For the present, therefore, it is clear that the one year course in institutional management will be favored by the students, and upon this our attention for the time being must be centered.

The course which Simmons College has offered for the past few years has brought together in each succeeding year women from twenty-five to fifty years of age,—school teachers, bookkeepers, secretaries, housekeepers, and others, who wished a change of occupation, including many who for the first time faced the necessity of self maintenance outside their own homes. Experience with these groups has taught us to believe that the minimum age requirement for such courses should be twenty-five and the maximum forty. Exceptions may of course be made in favor of candidates of marked ability and good personality, but in average cases these age limits seem essential.

Among the many desirable subjects of instruction we must choose a group which is adapted to class instruction and which meets the general need. Thus far this group has included a general course in chemistry; in the physiology of nutrition; in sanitary science: technical instruction in cooking, in household management, and in accounting; observation and practice in the college dormitories and lunchroom, to which have been added opportunities for additional observation and practice outside the college; and lastly, instruction in marketing and other essentials of institutional administration by the house superintendent, who has charge of the class.

It is evident that the groups occupied in practice under expert supervision must necessarily be small. For obvious reasons the ordinary administration of the college or the dormitory cannot be handed over to students in practice to a degree that would interfere with the purpose for which the dormitory was created. The problem which always appears in practice schools where the apprentice is being trained appears also in this instance. The dormitory can never be first a school and second a dormitory. The class must therefore be adjusted to the practice which can be secured without disturbing too much the routine of household administration. Thus far, groups of two have been assigned to regular service in dining room, kitchen, or corridor, under the direction of the assistant superintendent, and other similar groups have taken turns in meeting the responsibilities of the lunchroom, also under supervision. As these groups become expert, they take charge of different "functions,"—college teas, special dinners, special luncheons served to groups of students or instructors, receptions, and finally, the various social events attending the commence-

ment season. If the class remains until the dormitories are closed and the lunchroom put in order for the vacation, they have added valuable lessons.

Experience thus far goes to prove that the observation and practice under guidance, with interpretation by an expert, reveal in miniature many of the problems of institutional administration, and thus shorten the experience of "trial and error" which the novice would otherwise encounter. This practice, to be valuable, should therefore include typical experiences and should always be wisely interpreted. The opportunity for interpretation comes in the conferences with the house superintendent, which naturally increase in value as the class accumulates experience. Reports from workers indicate that this experience has enabled them to enter upon the work with greater intelligence and to make more rapid progress than could have been possible without their training.

It very soon became evident that the college could not afford sufficient practice, for in the nature of things it offered one type of experience, a homogeneous group, a known income, certain fixed conditions, and one type of equipment. It was with gratitude, therefore, that the college accepted the offer of the Women's Educational and Industrial Union, and sent its students to observe and to practice in their lunchrooms, and particularly to avail themselves of the experience gained in the preparation and administration of school lunchrooms. This opportunity led the students into new fields, where they met a public demand and dealt with new equipment and a new and illuminating set of conditions. Already we are learning that, other things being equal, the student is well prepared when she has been able to partake of the experience of differing institutions.

At this point it seems clear that instruction given after practical experience in different institutions would have much greater value than that which is given to the student who has had no institutional experience. And this leads to the question whether it would not be well to form a course divided into three parts: (1) preliminary instruction; (2) practical experience outside the institution which gives the instruction; (3) a report of experience, conference, interpretation, and instruction. If the institutional students could have the same alternation of study, practice, and interpretation which is possible in the normal school, where the young teacher is being trained, her advantage might be as great as that which accrues to the teacher.

This leads to the suggestion that two certificates might be given to

students who undertake the course in institutional management—the first a tentative certificate, stating that the student has completed the course of instruction; the second a final or senior certificate, given for assured success, with a written or oral report which has been accepted by the department. Such differentiation of certificates would enable the department to differentiate candidates and would at the same time tend to increase the number of valuable reports from the field.

The demands upon the department go to show a wide variety of opportunity in institutional administration, which no single course of instruction could adequately meet. One might definitely prepare students to administer college dormitories; the same student, however, will be confronted by requests to become a dietitian, in the sense of adviser concerning diets;—or she will be asked to buy, cook, and serve diets and teach classes of nurses at the same time;—or she may be urged to take complete charge of a lunchroom, a tea room, the stewardship of a hospital, or the administration of a children's home;—she may be asked to mother and manage a Welcome House; she may be called upon to administer the house of residence of the Y. W. C. A., or the small community which is the modern form of the orphan asylum. It is perfectly clear that here is opportunity not only for instruction in the essentials of dietaries, but economics must dominate the situation, while social service is indispensable. A college-trained woman in the new sense will find all the opportunities she may desire in this varied field—abundant demand for leadership, for education, for executive, for initiative, and for good sense.

Letters of inquiry invariably place personality first, experience second, and training third. These three essentials, all right, give us the ideal woman, who shall administer the ideal institution.

The ideal course gives us first, practice, to learn the alphabet of institutional life, (and this should be genuine practice in a real institution, on the individual responsibility). This prepares the student to understand and profit by instruction, which is the second step. The third step is practice again, this time illumined by the previous training. The fourth step is a return to instruction for the interpretation of practice. Now we are ready for the thesis, for the diploma, and for successful administration.

BUSINESS SESSION.

At the business session Mrs. Melvil Dewey was elected honorary chairman, Miss Adelaide M. Nutting, chairman, and Miss Martha Van Rensselaer, Secretary-treasurer. The existing committees were continued with power to add to their numbers. Other committees may be appointed by the chairman as needed.

The committee upon resolutions, consisting of Prof. Henry C. Wright, Miss MacMillan, and Mrs. Moran reported the following resolution:

The institution economics section of the American Home Economics Association expresses its keen appreciation of the hospitality accorded by Mr. and Mrs. Dewey and other trustees of the Lake Placid Club to the members of the Association individually, and for the accommodations for public meeting which, owing to the unusual beauty of the surroundings, have made the occasion of the conference especially pleasurable as well as profitable.

By rising vote, this resolution was unanimously adopted.

A special committee, consisting of Mrs. Melvil Dewey, Miss Nutting, Miss Watson, Miss Van Rensselaer, and Mr. Dewey, reported the following resolution, which was adopted unanimously by a rising vote:

The institution economics section records its profound sense of loss in the death of Mrs. Ellen H. Richards, who was pioneer, leader, and inspirer in a vitally important work, which has developed in the past twelve years a hundred fold in the numbers actively teaching and disseminating her ideals of home and family life which she termed euthenics, or the new science of right living.

As representing many institutions we realize that the influence of her work for many years to come will have great practical value in securing greater efficiency of administration.

Equally with our professional loss do we feel that there has left us a personal friend who always gave generously of her best to every one who sought her sympathy and counsel.

BIBLIOGRAPHY OF HOME ECONOMICS LITERATURE

DEC. 1, 1911.

I. FOOD.

Report on the Study of Meat Proteins. R. C. Moulton. U. S. Dept. Agr., Bur. Chem., Circ. 70. Difficulties in the use of the Kjeldahl method.

Market Classes and Grades of Meat. Louis D. Hall. Illinois Agr. Exp. Station, Bulletin 147, July 1910. Profusely illustrated.

Fresh Beef and Mutton in the Philippines. Report of the Commissary General, pp. 12-14 (1911). Report of experimental studies.

Deterioration of Eggs, as Shown by Changes in the Moisture Content. A. D. Greenlee. U. S. Dept. Agr., Bur. Chem., Circular 83.

The Effect of Present Methods of Handling Eggs on the Industry and the Product. M. E. Pennington and H. C. Pierce. U. S. Dept. Agr., Yearbook 1910. Separate 552.

Aging of Flour and its Effect on Digestion. J. A. Wesener and G. L. Teller. *Jour. Indus. and Eng. Chem.*, December, pp. 912-919.

The Chemical Changes Produced in Flour by Bleaching. G. W. Monier-Williams. *Jour. Soc. Chem. Ind.*, 30, p. 568.

Winter Emmer. M. A. Carlton. U. S. Dept. Agr., Farmers' Bulletin 466.

Changes Taking Place During the Spoilage of Tomatoes, with Methods for Detecting Spoilage in Tomato Products. R. F. Bacon and P. B. Dunbar. U. S. Dept. Agr., Bur. Chemistry, Circular 78.

A New Method for Calculating Water in Canned Tomatoes and the Detection of Added Water to Canned Tomatoes. Leon A. Congdon. *Jour. Indus. and Eng. Chem.*, October, pp. 744-747.

The Estimation of Total Solids in Milk by the Use of Formulas. R. H. Shaw and C. H. Eckles. U. S. Dept. Agr., Bur. An. Industry, Bul. 134, pp. 1-31.

Butter: Pure and Unadulterated, Practical Methods of Determining. Hon. Joel G. Winkjee. *Am. Food Journal*, September, pp. 52-54.

Methods and Results of Paraffining Cheese. C. F. Doane. U. S. Dept. Agr. Bur. of Animal Industry, Circular 181.

Buttermilk Cheesemaking at the Creamery. J. L. Sammis. Wisconsin Agr. Exp. Station, Bulletin 211, May, 1911.

Improved Methods for making Cottage and Neufchatel Cheese. North Carolina Agr. Exp. Station, Bulletin 210, September, 1910.

Direct Measurements of the Osmotic Pressure of Casein in Alkaline Solutions. Moore, Roaf and Webster. *Biochemical Journal*, October, 1911, p. 110.

Report on Vinegar. R. W. Balcom. U. S. Dept. of Agr., Bur. Chem., Bull. 137, p. 57.

Cider Vinegar. Frank E. Mott. *Jour. Indus. and Eng. Chem.*, October, pp. 747-750. A method of detection of certain forms of adulteration.

Report on Spices. A. F. Seeker. U. S. Dept. of Agr., Bur. Chem., Bul. 137, p. 80.

The Uses of Spices as Preservatives. C. Hoffmann and Alice C. Evans. *Jour. Indus. and Eng. Chem.*, November, 1911, pp. 835-837; *JOUR. HOME ECONOMICS*, December, 1911, pp. 452-459.

Detection of Benzoic Acid in Coffee Extract. H. C. Lythgoe and C. E. March, *Jour. Indus. and Eng. Chem.*, November, 1911, p. 842.

Removing Caffein from Roasted Coffee. *Chem. Abs.*, November 20, p. 3708.

A Simple Method for the Qualitative Detection of Caffein, Salicylic and Benzoic Acids. A. Nestler. *Chem. Abs.*, November 20, p. 3705. From *Arch. Chem. Mikros.*, 4, 225-231.

Determination of Malic Acid. P. B. Dunbar and R. F. Bacon. *Jour. Indus. and Eng. Chem.*, November, 1911, pp. 826-830.

The Determination of Benzoic Acid. Folin and Flanders. *Jour. Am. Chem. Soc.*, October, 1911, pp. 1622-1627.

Some Objections to the Use of Alum Baking Powder. Wm. J. Gies. *Jour. Am. Med. Assn.*, September 2, 1910, pp. 816-821.

Manufacture of Yeast. *Sc. Am.*, December 2, 1911, pp. 404, 506-7. Semi-popular.

Tin Salts in Canned Food and Low Acid Content. (With special reference to canned shrimp.) W. D. Bigelow and R. F. Bacon. U. S. Dept. Agr., Bur. Chem., Circ. 79; *Jour. Indus. and Eng. Chem.*, November, 1911, pp. 832-834.

Calorimetric Determination of Copper in Preserves. H. Serger. *Chem. Abs.*, November 20, p. 3704. From *Chem. Ztg.* 35, 935.

Chemical Food Preservatives. H. L. Harris. *Dietetic and Hygienic Gazette*, September, pp. 530-542.

Some Kitchen Tests to Detect Adulterations in Common Foods. E. H. S. Bailey. Bull. Dept. Food and Drug Inspection of Missouri, 3, 1911, No. 1-3, p. 43.

Experiments with Paper Bag Cookery. Culinary Editor. *Good Housekeeping*, October, p. 564.

Cooking in Paper Bags. *Good Housekeeping*, September, pp. 418-420.

Report on Colors. W. E. Mathewson. U. S. Dept. of Agr., Bur. Chem., Bull. 137, p. 52.

2. NUTRITION.

The Respiration Calorimeter and Results of Experiments with It. C. F. Langworthy and R. D. Milner. U. S. Dept. of Agr., Yearbook 1910, Separate 542.

Some Desirable Results following Water Drinking with Meals. P. B. Hawk. *Proc. Soc. Exp. Biol. and Med.*, 8, 1911, p. 36.

Ungastronomic America—The Theory of Wholesome Eating Multiplying the Pleasures of the Table—The Future of Cooking and Eating. Henry T. Finck. *Cent. Mag.*, November, December, January, 1911-12.

The Care and Feeding of Children, Part II. Flora Rose. Cornell Reading Course for Farmers' Wives, Food Series, No. 2.

The Metabolism, Directly Determined, of Healthy Children during Sleep. J. Howland. *Proc. Soc. Exp. Biol. and Med.*, 8, pp. 63-64.

Metabolism Experiments with Albulactin on Artificially nourished Infants. Karl Bornstein. *Chem. Abs.*, November 20, p. 3711 (from *Arch. Kinderheilk*, 56, pp. 16-26).

Nutrition and Growth. H. Aron. *Philippine Jour. Science*, 6, pp. 1-52; abs. in *Chem. Abs.*, September 10, p. 2879.

The Adaptability of the Animal Organism to a Superabundant Food Supply. E. Grafe and D. Graham. *Chem. Abs.*, November 20, p. 3700. From *Zeit. Physiol. Chem.*, 73, pp. 1-67.

The Role of Different Proteins in Nutrition and Growth. T. B. Osborne and L. B. Mendel. *Science*, November 24, pp. 722-732.

Protein as a Factor in the Nutrition of Animals. I. A Study of the Physical Constants of Fats from Swine. A. D. Emmett and E. C. Carroll. *Jour. Biol. Chem.*, 9, 1911, pp. 23-25.

New Studies on the Action of Animal Proteins upon Vegetarians. P. Albertoni and F. Rossi. *Chem. Abs.*, September 20, 1911, p. 3196.

The Metabolism of Development. III. Qualitative Effects of Pregnancy on the Protein Metabolism of the Dog. Murlin. *Am. Jour. Physiol.*, October, pp. 422-454.

Studies in Nutrition. I. The Utilization of the Proteins of Wheat. L. B. Mendel and M. S. Fine. *Jour. Biol. Chem.*, November, 1911, No. 4, pp. 303-325.

Studies in Nutrition. II. The Utilization of the Proteins of Barley. L. B. Mendel and M. S. Fine. *Jour. Biol. Chem.*, November, 1911, No. 4, pp. 339-343.

Experimental Studies on Creatine and Creatinine. L. B. Mendel and W. C. Rose. *Jour. Biol. Chem.*, October, No. 3, pp. 213-270.

Feeding Experiments with Isolated Food Substances, I, II. T. B. Osborne and L. B. Mendel. Carnegie Institution of Washington, 1911.

Studies on the Metabolism of Meat, I. Klotz. *Chem. Abs.*, September 20, p. 3107.

The Chemical Energy Transformation in the Dog after Ingestion of Different Quantities of Meat. H. B. Williams, J. A. Riche, and G. Lusk. *Proc. Soc. Exp. Biol. and Med.*, 8, 1911, pp. 61-62.

The Digestibility of White of Egg as Influenced by the Temperature at which it is Coagulated. P. Frank. *Jour. Biol. Chem.*, 9, pp. 463, 470.

Nutritive Value of White and Standard Bread. Hill. *British Med. Jour.*, 1911, No. 2627, pp. 1068-1069.

Influence of Different Sugars on the Digestive Action of Enzymes. H. Sciorino. *Chem. Abs.*, September 20, p. 3112.

Concerning Nucleases. Walter Jones. *Jour. Biol. Chem.*, April, pp. 129-137.

On the Physiological Agents which are Concerned in the Nuclein Fermentation, with Special Reference to Four Independent Desamidases. Walter Jones. *Jour. Biol. Chem.*, April, pp. 169-180.

Mucic Acid and Intermediary Carbohydrate Metabolism. W. C. Rose. *Jour. Biol. Chem.*, October, 1911, No. 2, pp. 123-138.

The Role of Lipoids in Nutrition. *Jour. Amer. Med. Assn.* November 4, 1911, p. 1540.

Influence of Saccharin on the Nutrition and Health of Man. Herter and Folin. U. S. Dept. of Agr., Office of the Secretary, Report 94.

Digestion and Absorption of Several Varieties of Raw Starch in the Normal

and Diseased Gastrointestinal Tract. L. Tofanow. *Chem. Abs.*, September 20, 1911, p. 3107.

On the Combined Action of Muscle Plasma and Pancreas Extract on Glucose and Maltose. P. A. Levene and G. M. Meyer. *Jour. Biol. Chem.*, April, pp. 97-107.

The Balance of Acid-forming and Base-forming Elements in Foods, and its Relation to Ammonia Metabolism. H. C. Sherman and A. O. Gettler. *Proc. Soc. Exp. Biol. Med.*, 8, 1911, p. 119-120; abs. in *Chem. Abs.*, November 10, p. 3600.

On the Alleged Formation of Lactic Acids in Muscle during Autolysis. W. M. Fletcher. *Jour. Physiology*, November 20, 1911, p. 286.

The Rôle of Salts in the Preservation of Life. Jacques Loeb. *Science*, November 17, pp. 653-665.

Calcium, Magnesium, and Phosphorus Metabolism in Health and in Gout. P. Ciuffini. *Chem. Abs.*, September 20, 1911, p. 3108.

Laboratory Studies of Pepsin, Pancreatin, and Combinations of these Ferments. A. Zimmerman. *Jour. Indus. and Eng. Chem.*, October, pp. 750-753.

Contributions to the Knowledge of Lecithin. Robt. Cohn. *Chem. Abs.*, November 10, p. 3598.

Heat of Combustion of Compounds of Physiological Importance. Emory and Benedict. *Am. Jour. Physiol.*, 28, p. 301.

Some Energy Factors of the Urine Excreted after Severe Muscular Exercise. Higgins and Benedict. *Amer. Jour. Physiology*, September 1, 1911, p. 291.

Influence of Colloids on Diuresis. Knowlton. *Jour. Physiology*, November 20, 1911, p. 219.

Rickets in Its Early Stages and the Best Treatment to Prevent Deformities. J. W. Cokenower. *Jour. Amer. Med. Assn.*, November 4, 1911, p. 1506.

The Treatment of the Arthritides. L. Litchfield. *Jour. Am. Med. Assn.*, October 21, pp. 1335-1338. Dietetic treatment of gout, rheumatic fever, etc.

3. HYGIENE AND SANITATION.

A Study of Carbon in Sewage and Sewage Purification. H. W. Clark and G. O. Adams. *Jour. Indus. and Eng. Chem.*, October, pp. 738-739.

Bacteriological Examination of Shucked and Shelled Oysters. Geo. W. Stiles. *Jour. Am. Pub. Health Assoc.*, September, 1911.

Pasteurization of Milk in the Sealed and Final Package. *Jour. Am. Pub. Health Assoc.*, September, 1911.

Bacteriological Investigations of Commercial Ice Cream in the City of Boston. Edith A. Beckler and Delphine J. Rusosoit. *Jour. Am. Pub. Health Assoc.*, August, 1911.

Garbage Receptacles. A. M. Hall. *Jour. Am. Pub. Health Assoc.*, July, 1911.

Investing for Health. William J. Cromie, Instructor in Gymnastics, Univ. of Pennsylvania. *Outlook*, October 28, 1911, pp. 479-484. Popular Directions for simple gymnastics and personal hygiene.

The Experiment of a Woman Where Clean Milk Can be Found. The Warelands Dairy. *Boston Cooking School Mag.*, October.

The Bacteriology of Ice. E. O. Jordan. *Ice Trade Journal*, 42, No. 1, p. 31.

The Washerwoman's Part in the World's Sanitation. Bertha H. Smith. *Modern Sanitation*, September, pp. 329-335. Illustrations of washing in various parts of the world.

Street Dust and Street Cleaning in Relation to Health, Comfort, and Economy. J. H. Landis. *Monthly Bull., Ohio State Board of Health*, 1, 1911, No. 3, p. 65.

Public Telephone: Germs' Paradise. T. W. Hillier. *Bull. Texas State Board of Health*, 5, 1911, No. 9, p. 24.

The Dust Menace and Municipal Disease. H. S. Anders. *Jour. Amer. Med. Assn.*, November 4, 1911, p. 1524. Popular.

Probable Tapeworm Infection of Northern Michigan Waters. *Jour. Amer. Med. Assn.*, November 11, 1911, p. 1621.

Intestinal Parasites Found in Individuals Residing in the Northwest. W. E. Sistrunk. *Jour. Amer. Med. Assn.*, November 4, 1911, p. 1507. Semitechnical.

Industrial Diseases. Paul S. Pierce. *North Am. Review.*, October, pp. 529-540.

Venereal Disease and its Influence. J. H. Cunningham Jr. *Jour. Am. Pub. Health Assn.*, June, 1911.

4. EDUCATION AND SOCIAL WORK.

The Girl of To-morrow—What the School will do for Her. B. R. Andrews. *Technical Education Bulletin*, No. 9, Teachers College, Columbia University.

Industrial Education. F. H. Sykes, F. G. Bonser, and H. C. Brandon. *Teachers College Record*, September, 1911.

Fundamental Values in Industrial Education. Frederick G. Bonser. *Technical Education Bulletin*, No. 10, Teachers College, Columbia University.

Conservation and Home Life: Housekeeping the Greatest Industry. Mary Pierce Van Zile. *Kansas Farmer*, 49, No. 44, p. 2.

One View of Domestic Science. Mary Leal Harkness. *Atlantic Monthly*, October 1911, pp. 474-479.

Syllabus on Household Management. Mary Louise Furst. *Technical Education Bulletin*, No. 8, Teachers College, Columbia University.

Saving Babies. *Survey*, September 2, 1911, p. 769. Popular.

Annotated List of Text and Reference Books for Training Schools for Nurses. *Technical Education Bulletin*, No. 11, Teachers College, Columbia University.

5. TEXTILES AND CLOTHING.

The Housework Dress. Mrs. Ralston. *Ladies Home Journal*, November, 1911, p. 31. Attractive designs for home-made housework dresses.

Dressmaking Made Easy. Eleanor Chambers. *Delineator*, December, 1911.

Practical Garments for Many Ages and Uses. *Delineator*, December, 1911, p. 464.

Household Embroideries in Several New Forms. Mildred Chapman. *Housekeeper*, December, 1911, p. 29. Slight variations of ordinary stitches, concise, illustrated, gives prices of stamped articles.

- The Making of Bobbin Laces. *Upholsterer*, November 15, 1911, p. 35.
- Rag Rug. *House and Garden*, December, 1911, p. 391.
- Buyers' Glossary of Upholstery. *Upholsterer*, November 15, 1911, p. 42.
- Determination of Linen and Cotton. Herzog. Translated by Ellen A. Beers. *Technical Education Bulletin*, No. 7, Teachers College, Columbia University.
- Felted Wool under the Microscope. Leo Pinagel. *Textile World Record*, November, 1911, p. 21.
- Defects in Knit Cloth. "Hoosier." *Textile World Record*, November, 1911, p. 112. A description of the defects that are liable to arise in knit goods.
- Improvements in Cotton Bleaching. Walter S. Williams. *Textile World Record*, November, 1911, p. 259. Various processes of the art of bleaching by modern methods.
- A Handbook of Weaves. G. H. Oelsner. *Textile World Record*, November, 1911, p. 221. A description of stitched rib weave and combination ribs.
- Practical Dyeing. Renmark. *Textile World Record*, November, 1911, p. 260.

6. MISCELLANEOUS.

- The Cost of the Cranberry Sauce. Chas. L. Chute. *Survey*, December 2, 1911, p. 1281.
- Some Work—Hazards which go into a Loaf of Bread. Don D. Lescohier. *Survey*, September 2, 1911, p. 804. Popular.
- Rooms in Paper. Nama A. Lathe and Esther Szold. *Manual Training Magazine*, October, pp. 1-8.
- The Cost of Living in the Twelfth Century. Dana C. Munro. *Proc. Am. Philosophical Soc.*, 50, 1911, No. 201, p. 497.
- A Steam Cooker which may be Attached to Steam Pipes. *Texas Farmer*, 32, No. 28, p. 10.
- The Prices of Farm Products. H. C. Taylor. *Wisconsin Agr. Exp. Station Bulletin* 209, May, 1911.
- Electrical Effects Accompanying the Decomposition of Organic Compounds. M. C. Potter. *Proc. Roy Soc.* 1911, B. 84, p. 260-275. Technical. A discussion of the electrical energy liberated by the action of yeast, diastase, and other micro-organisms.
- Conservation of the Solar Energy in our Food Supply. *Jour. Amer. Med. Assn.*, November 18, 1911, p. 1700.

MINUTES OF THE FOURTH ANNUAL MEETING, AMERICAN HOME ECONOMICS ASSOCIATION.

The Fourth Annual Meeting of the American Home Economics Association was called to order on Thursday, December 28, 1911, at 9:30 a.m. at the Henry D. Cooke School, Washington, D. C. The President of the Association, Miss Isabel Bevier, was in the chair and in the absence of the secretary-treasurer, Dr. B. R. Andrews, H. L. Knight of Washington, D. C., was designated acting secretary.

Miss Bevier opened the meeting by introducing Dr. W. M. Davidson, superintendent of public schools of the District of Columbia, who delivered the formal address of welcome. Following this address, Miss Bevier made the following response:

HOME ECONOMICS IN 1912.

"I am sure we are all thinking at this hour not so much of those who are present as of the one who has welcomed us so many times and who was for so many years the guiding spirit in this Association. Mrs. Richards' place can not be taken by another. It will need many of us to accomplish what she did single-handed and alone, and I am sure we all realize the added responsibility her loss brings to each of us.

We have come back after three years to the place in which this Association had its formal organization. Perhaps it is well to stop long enough for a backward glance over the way we have passed. Boston was our first mile stone, St. Louis our second. There have been steady accessions to our ranks, not only of individuals, but of groups, so that on December 1 our membership numbered 1078 and our affiliated associations 18. Moreover, the JOURNAL, the source of so many hopes and fears and labors, under the wise guidance of Mrs. Abel has grown steadily in favor, in interest, in helpfulness, and is today an exponent of the best Home Economics has to offer. All these are what we might call internal causes for congratulation and there are yet others. Home Economics has made a place for itself in the thought and life of the people, in the newspaper world, whether it be the county weekly, or the city daily, or the monthly magazine.

All of them 'according to their lights' give Home Economics a place. That means it is discussed by all sorts and conditions of people. Moreover, the Home Economics of the county weekly or of the city daily is quite as good as the science of the daily. That may not seem a great attainment, but it is really when you consider how old is science and how young is Home Economics.

Home Economics has made a large place for itself in our public school system, the people's college. Unfortunately, I can give the statistics of only one state, but in Illinois in the past three years the number of counties teaching Home Economics has increased from 27 to 51 and the number of high schools from 42 to 96. As your representative I was privileged to see the place it has made for itself in the far West. Judging from the numbers and the enthusiasm of the public meeting and the private conversation, one gets the impression that Home Economics in the mind of the Californian is second only to his zeal for his climate and his fair land.

East, West, and North, Home Economics is entirely respectable and sometimes even highly esteemed 'for its works' sake.' In the conservative South its place is not yet so assured. The South still retains the old definition for education and culture and has had less interest in the kind of Home Economics that is both educational and cultural. However, interest is now awakening and great progress is being made in the development of the subject.

This survey leads to certain obvious conclusions and suggestions concerning Home Economics. First, it has come to stay. The times are propitious for its development. Whether you interpret it in terms of vocational training, industrial training, or as neither of these, but as rational education for women, some form of it is making a place for itself in the school and the home and in the thought and life of the people. Evidently it has passed the popularizing stage. School boards need no longer be bribed with hot biscuits and well broiled steaks served by the children to show how 'practical' Home Economics is. Neither is it necessary for this Association to spend much time in by-laws and constitutions; but a greater task is theirs which calls for the long view, the clear vision, and abundant labors. To each man his work. To each group its work. One thing really *well* done, so shall Home Economics grow in public favor and educational value. You know the old story of Alice in the looking glass. 'In our country we run not to get ahead, but to keep up.'

There is need for research to answer the questions housekeepers

have been asking for years. We have made a mere beginning in applying to the food and nutrition of man the principles scientists tried out long ago in the feeding of lower animals.

There is a crying need for better art for all the people. Think how far we are from the ideals William Morris proclaimed years ago. Think of the monstrous bonfires resulting if just one of his numerous suggestions should be followed. 'Have nothing in your houses that you do not know to be useful or believe to be beautiful.' We have made only a beginning in putting forms of beauty in our daily life.

There is need for better economics, for wiser administration of the affairs of the home, for higher esthetic and ethical standards, for that wisdom and skill that shall enable women to see life whole and large, their place and part in it, and enable them to live above its machinery and beyond its petty details. Think for a moment of the familiar statement, Home Economics stands for a wise expenditure in the affairs of the home. What does that statement imply? That depends on several things—your definition of home. What is it? The place to go when the other places are shut? The place to sleep and eat in? The place to dress in to go somewhere else? The place in which to have company? The center about which family life revolves, to which they come for rest, comradeship and inspiration, the safeguard of the family and the state. Reduced to simplest terms its material basis is a house. This suggests architectural design and construction. For in the houses we build and furnish we give perhaps quite unconsciously our definition of home. Further it implies a knowledge of the supplies of the home—food, textile fabrics, art, metals, because there can not be wiser expenditure without knowledge. Henderson says, 'If one does not know where one wishes to go there is small chance of success in devising a process for getting there.' Also, it implies a knowledge of household processes and products. This means a knowledge of science, history, and literature.

Wise expenditure suggests a knowledge of the principles of economics. It is said three-fourths of all money expended is expended by women or for women. Why then should they not learn *how* to spend?

We have only begun to make good in the program so well outlined for us years since by former Commissioner Brown in these prophetic words: 'There will be some day preparation for mother work, for home making, for woman's leading part in the finer forms of social intercourse which will do on the higher academic plane what was

done in a more petty way generations ago in popular finishing schools for girls. There is to be further a serious preparation for woman's part in the economic, the industrial, and even the political world.' Women are in industry, in politics, today and I can but feel less confusion would have attended their entrance if there had been a training which fitted them better for these demands. We have not better brains than had our grandmothers, but the demands upon an educated woman of today and the woman of fifty years differs as greatly as the plumbing system of the modern house differs from the old oaken bucket or as simplicity differs from complexity. Home Economics is no panacea for all the ills of life, but it can do much to make a woman ready to serve in the daily tasks while she forgets not the finer things of the spirit. We are to be congratulated upon our opportunities and to go forth with a brave heart and without fear."

Announcement was made of the vote of the executive committee on the preceding evening to increase the annual dues of the Association to one dollar per annum. This action was taken in accordance with a vote at the St. Louis Convention, resting this power in the executive committee at its discretion.

The proposed amendments to the constitution and by-laws were then considered. Under the first of these a new by-law is added as follows:

SECTIONS OF AMERICAN HOME ECONOMICS ASSOCIATION.

I. Sections shall be organized subject to the approval of the council. Each section shall have its officers, consisting of chairman, vice-chairman, secretary, treasurer, and such committees as the section shall from time to time authorize.

II. Sections shall be represented on the council of the American Home Economics Association by the chairman.

III. The general Association will provide opportunity on its program for sectional meetings, will print the proceedings of sections and in every way possible encourage the development of sections.

Article IV of the constitution regarding membership of the council was amended to give chairmen of sections membership in the council by changing it so as to read: "Council shall consist of *four* classes of members" and "(4) the chairman of each section of the Association."

Under the second amendment, the relation of local associations to the American Home Economics Association was defined by adding to By-law III, Membership, a Section II on local associations.

Article III. Section II. Affiliated Local Societies. Any local organization desiring to affiliate with the American Home Economics Association shall include in its constitution the following statements: "The object of this organization is the same as that of the American Home Economics Association as stated in its constitution, Article 2. In addition, this association wishes to devote itself more specifically to the problems of Home Economics as they may develop in its local field."

The third amendment separated the offices of secretary and treasurer. Article IV of the constitution was amended in Section 1 to read: "A secretary, a treasurer," instead of "a secretary-treasurer;" and in Section 2, to read: "Secretary and treasurer," instead of "and secretary-treasurer;" and in Section 3 to read: "Six elected officers," instead of "five elected officers." Article II of the by-laws was amended to read in Section II (1): "The treasurer," instead of "the secretary-treasurer as treasurer;" and in Section II (2): "The Secretary," instead of "the secretary-treasurer as secretary."

These amendments were all adopted.

Report of the Secretary-Treasurer.—These reports were read by the acting secretary, as follows:

SECRETARY'S REPORT FOR 1911.

Office Arrangements.—At the time the Association was organized the secretary-treasurer conducted the business of the Association and JOURNAL, collecting dues, carrying on correspondence, etc. After the first two issues of the JOURNAL, the editorial work was transferred to Dr. Langworthy for the third issue and then to Mrs. Abel who has since served as editor. The secretary-treasurer continued to care for the business of the Association (address lists, collections, etc.) until into the second year when the lists and collections were transferred to the editor who added their care to the very considerable duties of editorial work already assumed. This proved an impossible burden and in the fall of 1910 the services of Mr. H. L. Knight of Washington, D. C., were secured, and an arrangement effected whereby he gave the editor such time as was at his disposal in assistance in preparing material for the printer, in seeing each issue through the press, and also as assistant treasurer undertook charge of the collection of JOURNAL subscriptions and Association dues. Meantime there has remained for the secretary-treasurer the general correspondence of the Association, preparation for meetings, and responsibility for funds. An amendment to the constitution is now proposed dividing the office of the treasurer from that of secretary, and in view of the fact that the budget is now \$4500, its adoption and the selection of a separate person to bear the financial responsibility as treasurer seems wise.

Further, the time has come when the Association should take steps to organize a business office for the JOURNAL and the Association. There should also be provided a paid assistant for full time engaged in aggressive and undivided efforts to

extend the JOURNAL's subscription list and the influence of the Home Economics movement.

Membership.—The membership during 1911 has been about 1100, which is a falling off of nearly 500 from last year. The decrease is to be explained as a result of the division of the fee for the subscription to the JOURNAL from the membership fee. This division, it will be remembered, was made necessary by the regulations of the United States Post Office department governing the admission of advertising to second-class mail matter.

The membership fee during 1911 has been 25 cents and the subscription to the JOURNAL \$2.00. There has been no falling off in the subscription list to the JOURNAL but on the contrary a slow but steady gain. The schedule of expenditures for the Association during 1911, amounting to \$577.74, indicates that the membership fee must be raised at once from its present amount, 25 cents, to \$1.00 as adopted last year.

The approximate membership, thus far, has been as follows: 1908, when the Association was organized, 700; 1909, 1250; 1910, 1500; 1911, 1100.

Publication of the JOURNAL.—The JOURNAL OF HOME ECONOMICS has been issued as a bi-monthly, in February, April, June, October, and December, 1911, including in all 527 pages. The subscription list is now upwards of 1600. The JOURNAL has been edited by Mrs. Mary H. Abel, of Baltimore, with the assistance of an associate board of editors, composed of Miss Helen Kinne, Miss Anna Barrows, Dr. C. F. Langworthy, Miss Abby L. Marlatt, Miss Isabel Bevier, Mrs. Melvil Dewey, Dr. Thomas D. Wood, and Miss Martha Van Rensselaer. The JOURNAL has been directly managed by a JOURNAL Committee, of which Mrs. Richards served as chairman until the time of her death. The remaining members of the committee, Dr. Langworthy and the secretary, have during the remainder of the year met in conference with the editor of the JOURNAL as occasion has demanded. The JOURNAL has also had the assistance of Mrs. Claudia Q. Murphy, as advertising director, and the beginning which has been made in the way of getting advertisements promises a source of revenue upon which the JOURNAL may depend.

The Conventions.—The convention of 1910 was held at St. Louis. During the summer of 1911, two sectional conventions were held, one with a program of educational topics at the San Francisco meeting of the Home Economics Association, under the chairmanship of Miss Bevier, president of the Association, who went to the Pacific Coast for this purpose. The local committees of the Coast and in San Francisco were most efficient in rendering assistance. The other summer convention was the second annual meeting of the administration section held at the Lake Placid Club, with a program on institutional administration. The question of annual meetings and summer conventions does not seem yet settled to the entire satisfaction of our members.

B. R. ANDREWS, *Secretary*.

TREASURER'S REPORT.

There was a balance of \$764.00 in the general fund, on December 23, 1910. As accounts for the JOURNAL and for the Association, beginning with 1911, were to be separated, this balance was apportioned, one-ninth to the new Association fund and eight-ninths to the JOURNAL fund.

I.

The Association fund started with a balance of \$84.77 and had receipts of \$269.50 from 1078 memberships at 25 cents each, and a balance of \$27.75 from the St. Louis convention luncheon receipts, a total of \$382.02 receipts. Expenditures against the Association fund amounted to \$577.74, an excess of \$195.72, over receipts, which excess was provided by an advance from the JOURNAL fund. The expenditures of the Association fund, totaling \$577.74, as noted, were divided as follows: Convention expenses: St. Louis, \$200.12, San Francisco and Lake Placid (summer of 1911) \$181.05, Washington, \$11.77; making a total for conventions of \$392.94. Secretary's expense, including postage, etc., \$78.75; assistant treasurer's expense, collecting dues, etc., \$64.80; treasurer's bonds, \$15.00; flowers for Mrs. Richards' funeral, \$25.00; and refunds on excess payments, \$1.25; making total expenditures for the Association fund, \$577.74.

Certain outstanding bills against the Association fund indicate that the total deficit in the Association fund for 1911 is approximately \$255.53.

II.

The JOURNAL Fund.—The receipts include a balance, share from the general fund, December 23, 1910, of \$679.23, and receipts from subscription fees of \$2974.60, sale of reprints, \$123.00, advertising \$5.00, and contributions for the November, 1910, issue from Mrs. Richards, \$300.00; total receipts for the JOURNAL fund, \$4081.83. The expenditures against the JOURNAL fund include for printing the JOURNAL, \$2256.35; the office and editorial expenses of the assistant treasurer, for editing the JOURNAL, collecting subscriptions, etc., \$724.40; advertising the JOURNAL, \$15.75; JOURNAL committee, \$45.32; editor's expense, \$78.74; advertising director's expense, \$39.25; office equipment bought, \$78.50; bank charges and refunds, \$6.20; a total expenditure from the JOURNAL fund of \$3244.51. In addition, there has been advanced from the JOURNAL fund to the Association fund, \$195.72, leaving a cash balance in the JOURNAL fund, December 10, 1911, of \$641.60.

There is still to be collected \$300.00 for advertisements for the JOURNAL, which with the cash balance makes a total of resources on December 10, 1911, of \$941.60. On the same date there were bills payable amounting to \$398.68, thus leaving an estimated real balance of \$542.92.

III.

The Administration Section has a fund of \$29.90 on deposit with the general Association.

IV.

Permanent Fund.—The Association has on deposit \$150.00, the proceeds of three life memberships.

B. R. ANDREWS, *Treasurer.*

Subsequently the auditing committee, consisting of Miss Bevier, Miss Martha Van Rensselaer, and Miss Caroline L. Hunt reported the accounts of the treasurer had been examined and found correct. This report was accepted.

Committee on the Memorial Fund.—In the absence of Mrs. Barrett, chairman, Dr. C. F. Langworthy reported informally that unforeseen delays had necessitated the postponement of the raising of the fund from November, 1911, till some period after the holidays. The preliminary work of organization, collection of names, etc., has made good progress and it is expected that the active solicitation will soon be vigorously prosecuted.

Committee on Entrance Requirements.—Miss Jenny H. Snow, chairman, reported that the committee had continued its endeavors to formulate a unit of work in food for college entrance requirements. Three tentative outlines had been considered but no final agreement reached in the matter. The committee was continued with the following personnel: Miss Snow, chairman, Miss Edna D. Day, Miss Louise Stanley, Miss Alice H. Craig, and Miss Ella J. Spooner.

ADJOURNED MEETING.

The business session was resumed at 11:00 a.m., December 29.

Committee on Affiliated Societies.—Miss Van Rensselaer reported informally on the progress being made in organizing affiliated societies. A questionnaire showed a general movement in this direction all over the country. The committee urged that all such societies actively support the JOURNAL. This report was accepted.

Committee on JOURNAL.—Mrs. Abel summarized the work of the year and described some of the difficulties with which the editor has had to contend. The need of an organized trained force was especially emphasized and an earnest appeal made to all members of the Association for continued support.

On motion of Miss Isabel Ely Lord, seconded by Miss Adelaide Nutting, a rising vote of thanks was accorded Mrs. Abel in appreciation of "her valuable and invaluable service as editor of the JOURNAL."

Committee on Legislation.—In the absence of Dr. Andrews, chairman, a report of progress was submitted by Miss Anna Barrows. In this report a brief description was given of five bills pending in congress which concern Home Economics education, viz., the Page bill (Senate No. 3), the Wilson bill (House No. 1312), the Smoot bill (Senate No. 1369), the McLaughlin bill (House No. 15256), and the Lever bill (House No. 11542). The committee recommended that each member of the Association secure copies of these bills from their representatives in Congress and after a comparative study of their merits write Senators and Members of Congress concerning them.

This report was accepted and the committee continued with the following organization: Dr. Andrews, chairman, Miss Rosa Bouton, Miss Anna Barrows, Mrs. Robert M. La Follette, and Miss Jessie M. Hoover.

Committee on Nomenclature on Home Economics.—This report, which had been presented and adopted by the department of manual training and Art of the National Education Association at San Francisco, July 13, 1911, was presented by Dr. A. C. True, director of the Office of Experiment Stations, U. S. Department of Agriculture. The report is as follows:

(1) In the judgment of the committee, the term Home Economics should be used to designate the subject as a whole wherever it is taught, qualified only by the terms elementary, secondary, and higher as commonly applied to courses of instruction of different grades.

It was moved that the definition of Home Economics formulated by the committee of the Association of Agricultural Colleges and Experiment Stations on college courses in Home Economics be adopted. See (2).

(2) *Definition.*—Home Economics, as a distinctive subject of instruction, includes the economic, sanitary, and esthetic aspects of food, clothing, and shelter as connected with their selection, preparation, and use by the family in the home or by other groups of people.

(3) *Instruction.*—Instruction in this subject should be based on the laws of the physical, biological, and sociological sciences. The presentation should be graded according to the maturity, attainment, and purposes of the students.

(4) *Aim.*—(a) Elementary Schools. In the elementary schools, the central thought should be the acquiring of skill.

(b) Secondary Schools. In the secondary schools, while the work should lead to greater skill, it should also develop "the reason why" and cultivate the scientific method of thought by means of experiment. To this end, it should be correlated carefully with the work in other subjects so as to economize the time of teachers and students.

(c) Higher Institutions. In higher institutions while skill and applied science and art are fundamental in the instruction, there should be the broader scientific, economic, and sociologic view and whenever practicable, the development of research.

[Signed] ELIZABETH C. SPRAGUE, *Acting Secretary.*

Dr. True explained that this report represented the joint action of the committee on instruction in agriculture of the Association of American Agricultural Colleges and Experiment Stations and the committee on nomenclature of the American Home Economics Association and had met with general approval at the San Francisco meeting. The report was intended to run along somewhat general lines with a view to reaching agreement on what should be included in the general sub-

ject of Home Economics and then by what name it should be designated.

Considerable discussion developed with reference to that section dealing with the scope of instruction in the elementary schools. The suggestion was made that the term "intelligent skill" should be used, but a number of speakers pointed out that skill implies intelligence. The report was adopted as a whole, and the committee continued with the following personnel: Dr. True, chairman, Miss Rosa Bouton, Miss E. C. Sprague, Miss Mary Wright, and Miss Abby L. Marlatt.

ADJOURNED MEETING.

The final business session was held December 30, at 11:00 a.m.

Committee on Graduate School.—A verbal report was presented by Dr. Langworthy at the request of Mrs. Alice P. Norton, chairman. The formal report is as follows:

At the close of the session of the Graduate School of Home Economics at Ames, Iowa, in the summer of 1910, the following resolution was passed:

"Inasmuch as the agricultural colleges constitute the largest group of collegiate grade in the United States giving courses in Home Economics we, the Graduate School of Home Economics, request that in planning the work in the future, the Graduate School of Agriculture offer a section of Home Economics that the needs of the women students be as fully met as those of the men.

"The Graduate School of Home Economics, after several years of separate organization, has become a part of the American Home Economics Association, and can assure the Graduate School of Agriculture that the American Home Economics Association will coöperate in every way and will work for the benefit of the Home Economics section which we hope may be formed."

Your committee has been informed that the committee having the Graduate School of Agriculture in charge has decided that courses of instruction in Home Economics can not be provided by the school, in addition to its course in agriculture, since the demands for strictly agricultural work are fully as great as available resources will provide. However, the Graduate School of Agriculture is in sympathy with the objects and aims of the Graduate School of Home Economics, and will coöperate with the school along the same lines as heretofore, provided it is held at the same time and place as the Graduate School of Agriculture.

At the Third Annual Meeting of the American Home Economics Association in St. Louis, it was decided that the next session of the Graduate School of Home Economics should be held at the Michigan Agricultural College, East Lansing, Michigan, in July, since the Graduate School of Agriculture is to be held at that place during the whole of that month, and that the period be selected in which the program of the Graduate School of Agriculture offers the most which would be of interest to the Graduate School of Home Economics. Your committee has made its plans accordingly and hopes that the school will be a worthy successor to the schools held at the University of Illinois, at Cornell University, at the Agricultural College

DEPARTMENT

OF

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at Ames, and that it may even in a somewhat different form reproduce the spirit and some of the features of the meeting held in 1902, at Wesleyan University, Middletown, Conn., which is the real parent of the Graduate School of Home Economics.

As regards courses of instruction, Dr. C. E. Marshall of the bacteriology department and Prof. Frank S. Kedzie of the chemistry department of Michigan Agricultural College are ready to offer lectures and laboratory work in their subjects. It is believed that even in the short duration of the school, such laboratory courses will be helpful to the advanced student in illustrating modern methods of work. If additional laboratory work is desired, it is possible that arrangements can be made to continue it throughout the whole month of July.

The course of animal physiology offered in the Graduate School of Agriculture will include much that will be of interest to students of Home Economics. The lecturers include Professor Pearl of the Maine Experiment Station, Professor Mendel of Yale, Professor Koch of Chicago, Professor Forbes of the Ohio Experiment Station, and Professor Sherman of Columbia. It is hoped that Professor Hoffman-Bang of Copenhagen will also be present. Every effort will be made to induce as many of these men as possible to give at least one lecture on the special problems of Home Economics.

Dr. Langworthy, Professor Bevier, President of the American Home Economics Association, and others have consented to present papers, and it is hoped that many others who are not only teachers but investigators will present results of their research work. Your committee suggests that one special purpose of the Graduate School for this year be to familiarize the students with the latest results of such work.

The committee would like the opinion of the Association in regard to this. They also wish the judgment of the Association in regard to the length of the school. The School of Agriculture meets from July 1 to 26, and it has been suggested that the School of Home Economics might extend its session from two to four weeks. This would make laboratory work more worth while, and would make it possible to avail ourselves more completely of the advantages offered by the School of Agriculture.

[Signed] ALICE P. NORTON, *Chairman*.

Before this report was presented to the annual meeting, a meeting of the Graduate School committee was held, at which Dr. A. C. True, dean of the Graduate School of Agriculture, was also present. At this meeting, later information was available regarding the possibility of coöperation on the part of the Michigan Agricultural College and some suggestions were made regarding additional work which would prove acceptable to the college, namely, a strong course in textile technology. Suggestions were also made for amplifying the project for presenting results of research work by a course of instruction designed to familiarize the students with the selection of problems for research, and the methods followed in the study of such problems, and which would in general familiarize the students with the objects sought and means employed in the independent study of scientific problems. It was the sense of the meeting that the Graduate School

of Home Economics should be limited to two weeks in July but that arrangements should be made, if possible, by which students who so desire may continue laboratory work throughout the entire month.

The business transacted by the committee was outlined and the report of the Graduate School of Home Economics accepted. The committee to be in charge in 1912 was announced as follows: Mrs. Alice P. Norton, chairman, Miss Edna D. Day, Miss Abby L. Marlatt, Miss Martha Van Rensselaer, Miss Maude Gilchrist, Miss Agnes Hunt, Dr. C. F. Langworthy, and Dr. L. B. Mendel.

Following brief remarks by Dr. Mary Walker, and the announcement by the President of an invitation from the Fifteenth International Congress of Hygiene and Demography, to be held in Washington D. C., September 23-30, 1912, to attend and contribute papers, the position of the Association with reference to Federal legislation was further set forth by the President. A resolution endorsing pending legislation providing Federal aid to secondary schools for training in Home Economics, agriculture, and the trades and industries was presented and referred to the committee on legislation.

Committee on Resolutions.—Miss Craig reported resolutions which were adopted expressing the deep appreciation of the Association of the hospitality offered by the Home Economics Association of Washington, D. C., and the efficient, courteous, and never-failing service of the local committee in charge of the convention; thanking the School Board of Washington for the use of the Henry D. Cooke School, Superintendent Davidson for his interest and assistance, and Janitor Price for his efficient care of the building during the convention; and expressing the appreciation of the Association for the hospitality extended by Mrs. William H. Taft, Mrs. Franklin MacVeagh, and Mrs. Robert M. La Follette, and also to the trustees of the Corcoran Gallery of Art, the Cornell Women of Washington, and the Eistophos Club. By another important resolution the Association placed itself on record as desirous of favoring in all possible ways the cause of pure textiles, and authorized the appointment of a committee to report at the next annual meeting as to progress, both legislative and educational, in this direction, and to give all possible publicity to the facts necessary for an intelligent discussion of textile adulteration.

A resolution urging a health regulation for all cities compelling the proprietor of every public eating house to light the kitchen so as to illuminate all parts thereof, and install between the kitchen and dining room a glass partition which would afford an uninterrupted view of the

kitchen was also presented, but laid on the table for further consideration.

Miss Nutting explained the work of the Administration Section of the Association, particularly as to school luncheons.

Election of Officers.—The nominating committee, through Dr. H. C. Sherman, chairman, presented the following nominations for terms of one year: President, Miss Isabel Bevier, University of Illinois; first vice-president, Dr. C. F. Langworthy, U. S. Department of Agriculture, Washington, D. C.; second vice-president, Miss Martha Van Rensselaer, Cornell University; third vice-president, Miss Abby L. Marlatt, University of Wisconsin; secretary, Dr. B. R. Andrews, Teachers College; treasurer, Howard L. Knight, Washington, D. C.; and member of the council (vice Miss Marlatt), Miss Agnes Harris of Florida. For terms of five years were nominated the following as members of the council: Miss Ellen A. Huntington of the Agricultural College of Utah, Catherine J. McKay of Iowa State College, Miss Louise Stanley, of the University of Missouri, Miss Mary L. Tuttle of Pratt Institute, and Mrs. Mary P. Van Zile of the Kansas State Agricultural College; as a member of the nominating committee Miss Emma S. Jacobs of the Public Schools of Washington, D. C. Miss Caroline L. Hunt was nominated to the council for four years to fill the vacancy caused by the death of Mrs. Richards.

These nominations were accepted and the nominees duly elected.

The convention then adjourned, *sine die*.

H. L. KNIGHT, *Acting Secretary*.

PROGRAM OF THE FOURTH ANNUAL CONVENTION, AMERICAN HOME ECONOMICS ASSOCIATION.¹

WASHINGTON, D. C., DECEMBER 27-30, 1911.

WEDNESDAY, DECEMBER 27.

2:30 p.m. Meeting of Executive Committee, Hotel Gordon.

3:30 p.m. Meeting of Council, Hotel Gordon.

Reports of affiliated societies.

THURSDAY, DECEMBER 28.

9:30 a.m. Convention called to order by the President of the Association, Miss Isabel Bevier, University of Illinois.

Address of welcome by Dr. W. M. Davidson, Superintendent of Public Schools, Washington, D. C.

Response by Miss Bevier.

¹ Papers read by title will be listed in the April JOURNAL.

Action on proposed amendments to constitution and by-laws.

Reports of officers.

Reports of Committees:

(1) Committee on Ellen H. Richards Memorial Fund, Mrs. Caroline Weeks Barrett, Chairman; (2) Report of Committee on Entrance Requirements, Miss Jenny Snow, Chairman, University of Chicago.

10:30 a.m. Papers:

Applied Science—Its Place in the Curriculum of a College of Liberal Arts for Women:—1. Bio-Chemistry, Mary Louise Foster, Instructor in Chemistry, Smith College. 2. Chemistry, Miss Katherine Blunt, Ph.D., Department of Chemistry, Vassar College.

Metabolism Experiments—Alice F. Blood, Ph.D., Assistant Professor of Chemistry, Simmons College.

Some Chemical Differences Between Short and Long Process Breads, Miss N. E. Goldthwaite, Ph.D., Assistant Professor of Household Science, University of Illinois.

11:30 p.m. Paper: Some Important Considerations in the Feeding of Young Children, Professor E. V. McCollum, University of Wisconsin.

Round table: "The Elementary Work in Preparation of Food in College Classes," Miss Bevier, Chairman; papers by Miss May B. Van Arsdale, for Department of Foods and Cookery, School of Household Arts, Teachers College; Miss Catherine Mulligan, University of Tennessee; Mrs. Mary Pierce Van Zile, Kansas Agricultural College; Miss Ruth Atwater and Miss Jessie A. Long, Pratt Institute; and others.

3:00 p.m. Complimentary cavalry drill at Fort Myer.

4:00 p.m. Mrs. W. H. Taft received the ladies of the American Association for the Advancement of Science and affiliated societies at the White House.

5:00 to 7:00 p.m. The Cornell Women of Washington gave a tea to visiting ladies at the home of Mrs. Frederick A. Holton.

8:00 to 10:00 p.m. Reception by the Trustees of the Corcoran Art Gallery to the delegates and members at the Corcoran Art Gallery.

FRIDAY, DECEMBER 29.

9:00 a.m. Round table on Domestic Art Instruction for College Students.

General Topic: "After Some Years of Experimentation What is the Educational Aim, Method, and Accomplishment in College Courses in Domestic Art?"

Miss Agnes Houston Craig, Director of Domestic Art, College of Industrial Arts, Denton, Texas, Chairman. (1) From the Viewpoint of Science, Miss Ella Josephine Spooner Instructor in Domestic Art, Simmons College, Boston, Mass. (2) Through Its Economic Interests, Miss Gertrude Van Hoesen, Instructor in Household Art, Chicago University, Chicago. (3) Esthetically Considered, Miss Mary Wynne Shackleford, Director of Fine and Industrial Arts, College of Industrial Arts, Denton, Texas. (4) Technical Instruction, Miss Ruth Wilmot, Instructor in Domestic Art, Pratt Institute, Brooklyn, N. Y. Discussion: (1) Scientific and Economic Phases, Miss Anna F. Blohm, Instructor in Domestic Arts, Ohio State University.

Recommendations from the floor; Better Organized and More Unified Courses in Domestic Art.

11:00 a.m. Business Session of Association.

Reports of Committees (continued): (3) Report of Committee on Affiliated Societies, Miss Martha Van Rensselaer; (4) Report of Committee on JOURNAL, Mrs. Mary H. Abel, Editor, Discussion; (5) Report of Committee on Legislation, Dr. B. R. Andrews, Chairman; (6) Discussion of Report of Committee on Nomenclature in Home Economics, Dr. A. C. True, U. S. Department of Agriculture.

12:30 p.m. Convention Luncheon, Hotel Gordon.

3:30 p.m. Session in charge of Administration Section of the Association, Miss Adelaide Nutting, Teachers College, Columbia University, Chairman.

Topic: "School Lunch Rooms, Their Equipment, Organization, and Function," Elementary School Lunch Rooms. Miss Mabel H. Kittredge, Chairman of School Lunch Committee of Public Education Association in New York City. High School Lunch Room: (A) Mrs. Mary H. Moran, New England Kitchen, Boston; (B) Miss Emma Smedley, William Penn High School, Philadelphia. A Cafeteria for College Students, Miss Arnold, Cornell University.

4:00 to 6:00 p.m. The Eistophos Science Club of Washington was at home to visiting ladies at the Tea Cup Inn.

Mrs. Franklin MacVeagh was at home to visiting ladies.

8:00 p.m. Public Meeting of American Home Economics Association.

"Education and Home Economics," with address of welcome, Philander P. Claxton, U. S. Commissioner of Education.

Response: Miss Isabel Bevier, President of American Home Economics Association.

Paper: Home Economics and Culture, Mrs. Mary Hinman Abel, Editor of JOURNAL OF HOME ECONOMICS.

9:00 to 10:30 p.m. A reception was given to the American Home Economics Association by the Home Economics Association of Washington, D. C.

SATURDAY, DECEMBER 30.

9:30 a.m. Paper: A Course on the History of the Household. Miss Willystine Goodsell, Assistant Professor, Teachers College, Columbia University.

Round table: Miss Bevier, Chairman, Extension Education in Home Economics: (1) in Kansas, Mrs. Mary P. Van Zile, Kansas Agricultural College; (2) In Minnesota, Miss Mary L. Bull, University of Minnesota.

Effect of School Feeding on the Physical and Mental Development of the Child, Miss Alice C. Boughton, Philadelphia, Pa.; Miss Louise Stevens Bryant, Philadelphia.

12:00 Concluding Business Session. Report of the Graduate School, Mrs. Alice P. Norton, Chairman. Report of Committee on Resolutions. Report of Nominating Committee.

Adjournment.

8:00 p.m. Mrs. Robert M. La Follette was at home to visiting ladies.

MEETING OF THE COUNCIL.

The council of the American Home Economics Association met at the Hotel Gordon, Washington, D. C., Wednesday, December 27, 1911, at 3.30 p.m., with President Bevier in the chair.

The proposed amendments to the constitution and by-laws were laid before the council, and after discussion referred to the business meeting of the Association. The question of the amount of membership dues for 1912 was discussed, and attention was called to the action of the Association at the business meeting of the St. Louis convention, providing that the dues should be \$1.00, whenever authorized by the executive committee. This action was judged final, and the increased dues ordered put into effect at once.

The treasurer's report was presented (see page 95) and made the basis of a discussion as to the activities of the Association. The finance committee reported as follows: "As not one of the finance committee is a member of the executive committee and only one belongs to the council, it considers itself incompetent to outline financial policy, or to make recommendations which might prove unwise and inexpedient. It therefore begs leave to ask that it be discharged and a new committee be appointed from the executive committee." On motion, after discussion, the report was adopted.

On motion, it was voted that the chair appoint a committee of three on constitution and by-laws, to consider changes in the constitution and by-laws and also needed rules of procedure for committees. The president later appointed Miss Nutting, Miss Talbot, Miss Marlatt.

The matter of local societies and their relation to the general association was brought up for discussion. Miss Van Rensselaer, of the committee on affiliated societies, reported on the general situation, and upon the New York Association in particular. Miss Gilchrist presented a report for the Michigan Home Economics Association; Miss Craig spoke of plans for a State Association in Texas; and Miss Elliott presented the report of the New England Home Economics Association. The need of organized effort for the development of local associations was urged and it was moved and voted, after discussion, that the executive committee appoint a committee of five on publicity and organization to study ways and means of increasing membership, of developing local associations, and of promoting the JOURNAL.

The suggestion was made that a central office for the Association and JOURNAL be organized, at which a person should be employed for full time as an office secretary and assistant to the editor, (1) to carry on the office work of the Association, collect dues, handle correspondence, etc., and (2) to collect subscriptions for the JOURNAL, canvass for new subscriptions, give assistance to the editor of the JOURNAL, and in general actively advance the interests of the Association and the JOURNAL. Such a person, it was pointed out, could assist in many of the forward movements which the committee on publicity and organization might outline. On motion, duly seconded, after discussion it was voted to recommend to the executive committee the organization of a central office for the JOURNAL and the Association, with a full-time assistant in charge.

Mrs. Stannard, of the New England Association, reported the provisional plan of that association for a Home Economics bureau of information, in Boston, which would serve that section.

On motion, the meeting of the council adjourned.

B. R. ANDREWS, *Secretary*.

EDITORIALS.

The second annual meeting of the Administration Section, the papers and discussions of which are presented elsewhere in this issue, marked a decided advance over the first meeting. Those who attended the gathering at Lake Placid were struck with the fact that there were in attendance a considerable number of persons professionally interested in the administration of large public institutions.

This made possible one of the most interesting and valuable sections in the program, a detailed discussion of systems of buying. The presence of Mr. Wright, of the State Charities Aid Association, who had recently completed an authoritative investigation of systems of institutional buying in New York and certain other states, placed the discussion of this topic at once upon a high level and permitted the consideration of detailed problems as to methods of ordering, receiving, storing, and administering the supplies in large institutions. Several representatives of New York state institutions were present, including certain physicians and other officials who are concerned practically with the steward's department. The ordinary contract system of purchase was discussed, and one interesting fact brought out that under certain circumstances buying in smaller quantities under direct immediate supervision has certain considerable advantages.

Another very practical topic was presented by Mrs. Dewey, with her study of institution kitchens, their equipment, organization, and administration. Mrs. Dewey had collected information by a questionnaire, sent out to a large number of institutions, which had called forth statements of many important problems. One of the most interesting was that of the standard unit-kitchen for large institutions, whether the best efficiency is found by limiting each kitchen to a service of 150 people, or 200 people, or some larger number. The problem, as outlined, is one worthy of most careful and painstaking study, and one cannot but wish that some scientific agency, like the Sage Foundation, might devote some of its funds to the determination of this and similar problems which underlie efficiency and human welfare in institution life.

The topic of lunchrooms was treated by Miss Arnold, of Cornell University, who has had a remarkable experience in organizing a cafeteria for students, and who made plain that it is impossible to devote too much care and skill in this field, to the end that students may not only have nourishing food, but at the lowest possible price, in view of the narrow margins of expenditure upon which most students finance their college education. The problem of the institution lunchroom, as Miss Arnold explained, was seen to fall in with all that is being urged in these days for the protection of human welfare and the conservation of human energy. Miss Sanborn brought another experience to bear upon the same problem from the industrial lunchroom, in which she had had an unusually successful experience in the city of Toronto.

That there may be ultimately a science of institutional organization and administration was evident in the presentation by Mr. Dewey of record charts showing standards and measurements of performance in this field. The inventive genius, for it is no less, which Mr. Dewey has shown in the organization of the library field, is now finding a most happy expression in the development of controlling records and accounting forms for the institution household. Another interesting contribution was that of Dr. Langworthy, who presented the many sources of information for the institution worker in the wealth of government and municipal documents and reports.

One of the most striking items on the program was Dean Arnold's address on the Essentials in the Selection and Preparation of Students for Administrative Work. She made plain what every thoughtful institutional worker appreciates, that one who would go into institution service must be ready to undertake responsibilities for life and welfare which are of a graver nature than those which confront the schoolroom teacher. There are needed qualifications of judgment and maturity, as well as of learning and training, if the responsibilities are to be safely intrusted. Dean Arnold urged that only as our training institutions are able to include a model demonstration dormitory, in which the students can themselves undertake responsibilities for the general housekeeping, the commissary, and other departments, placing themselves under real tests in real situations, can the training in institution management become a real preparation. The medical college without the hospital, the school of education without its affiliated elementary school for experimentation and practice teaching, would be no more an anomaly than our present courses for training

institution workers which are being organized without adequate opportunity for real field work. Not observation alone, but actual practice work under teaching supervisors of ability, is absolutely essential in the preparation of institution workers.

Taken all in all, the meeting at Lake Placid last summer not only marked progress over the meeting of the preceding year, but it definitely set up as a standard agreed to by persons concerned with practical teaching and with practical institution administration alike, that the whole field of institution management can be and must be reduced to system and order, and made available to the person entering it as a profession, not through blind apprenticeship, but through training in professional courses which shall combine the necessary foundation in science with actual apprentice practice under supervision.

By vote of the Council, which held its annual meeting on December 27, the fee for membership in the American Home Economics Association, beginning with 1912, has been raised to **Increased** \$1. The reason for this decision is the simple one **Fee for** that the present income does not pay the expenses of **Membership.** the Association. The income from membership fees has been \$269.70. The expenses have been \$577.74. The largest outgo is for the annual meeting, and a considerable sum has also been used in paying part of the expenses of the two meetings held last summer, one in San Francisco, the other at Lake Placid, N. Y. The deficit has been made up by an advance from the funds of the JOURNAL. There are other urgent calls on the treasury which we are not able to meet; it is important for instance that certain committees, such as that for affiliated societies, should have sums of money to use for development. If there were money to be expended in certain directions, without doubt the Association could be greatly enlarged as to membership and its influence more widely extended.

Members of the Association will receive as formerly programs in advance for annual and other meetings and will receive reports of proceedings. Members are entitled to vote at all meetings and are eligible for election to the Council and Executive Board which attends to the business of the Association.

But it is on no such grounds of privilege that all who have been members should continue to pay the increased dues. For the continuity of the movement, it is necessary that large membership shall be loyally devoted to the ends for which the Association stands. The

present membership of about 1100 should be 1500 before the end of the year. Will all of our present members and subscribers take earnestly to heart the needs of the Association?

The article in the December JOURNAL entitled Home Economics from the Standpoint of the Grade Teacher should have been credited to Miss Melva Latham, in charge of the seventh grade in the School of Education of the University of Chicago.

The Boston Normal School of Household Arts was organized by Mrs. Hemenway in 1886, instead of 1888, as stated (October JOURNAL, p. 339). In 1898 it was given over to the state of Massachusetts and became the Mary Hemenway Department of Household Arts of the Framingham State Normal School. In 1905 its course was extended to three years.

In order to supply complete sets to libraries and others, we are still anxious to secure additional copies of the following issues of the JOURNAL: Volume 1, Nos. 1 and 2; Volume 2, No. 1; and Volume 3, No. 2. Forty cents per copy, payable either in credit on subscriptions or in cash, will be paid for the return of any of these numbers in good condition. Please notify us when sending, and state form of payment desired. Address American Home Economics Association, Roland Park Branch, Baltimore, Md.

At an important meeting of the Ellen H. Richards Memorial Fund Committee held January 20, 1912, the fund was specifically designated the Ellen H. Richards Home Economics Fund, and its object defined as the application of the results of scientific investigation for advancing the interest of the home. The immediate purpose as decided is to establish permanently the JOURNAL OF HOME ECONOMICS, the one scientific journal devoted to advanced housekeeping, and upon which Mrs. Richards was engaged at the time of her death; other objects contemplated are investigation, publication, fellowships, lectureships, etc. The selection of permanent trustees was considered and plans outlined for an active campaign for soliciting funds which it is expected will be under full headway by the time the JOURNAL reaches its readers. Mrs. William H. Barrett, 108 Johnson Street, Brooklyn, N. Y., is chairman of the committee, and Dr. Benjamin R. Andrews, Teachers College, New York City, secretary-treasurer.

THE Journal of Home Economics

Vol. IV

APRIL, 1912

No. 2

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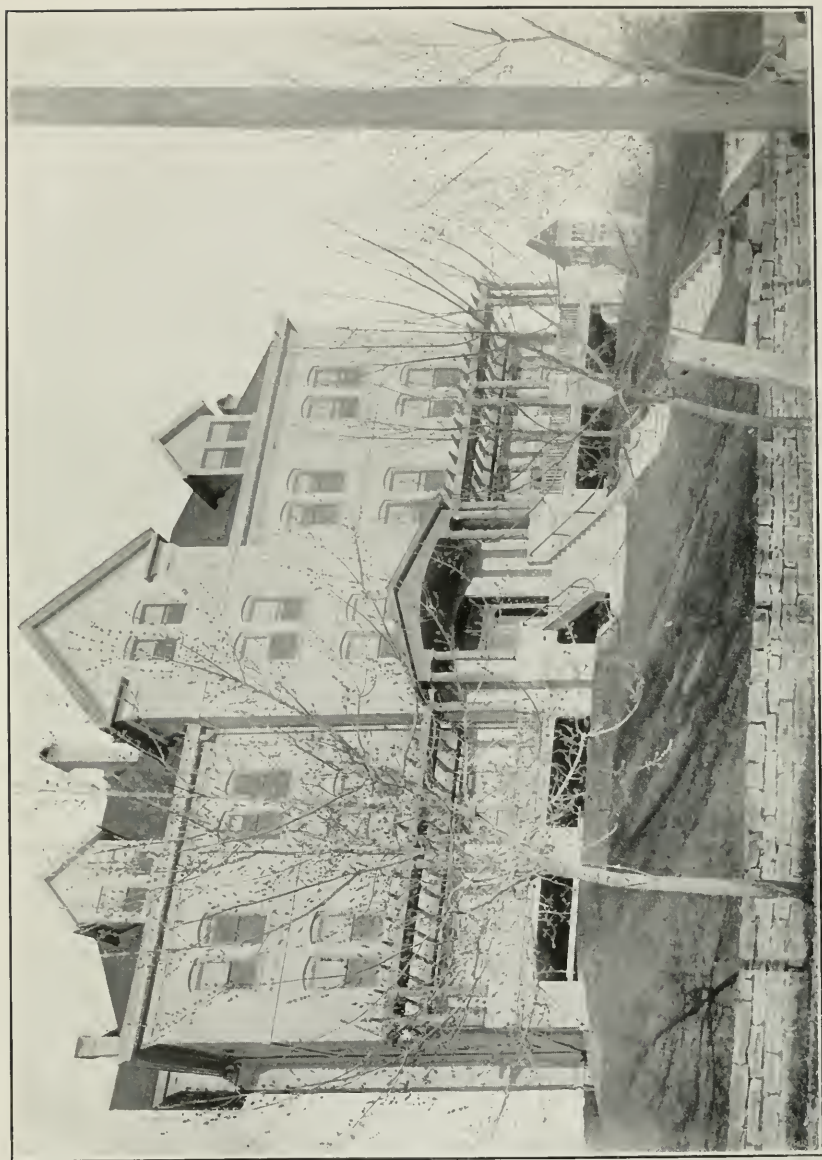
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Women's Building and Home Economics Department, Agricultural College of Utah.

(For description see October, 1910, JOURNAL, p. 443.)

T H E

Journal of Home Economics

VOL. IV.

APRIL, 1912

No. 2

A PLEA FOR THE INTRODUCTION OF HISTORICAL COURSES ON THE HOME INTO HIGHER SCHOOLS AND COLLEGES FOR YOUNG WOMEN.¹

MISS WILLYSTINE GOODSSELL, PH.D.

Teachers College, Columbia University.

Almost sixty years ago, Herbert Spencer, in his oftquoted treatise on *Education*, voiced part of his criticism of the intellectual training of his day in the following words:²

If by some strange chance not a vestige of us descended to the remote future save a pile of our school-books or some college examination papers, we may imagine how puzzled an antiquary of the period would be on finding in them no indication that the learners were ever likely to be parents. "This must have been the curriculum for their celibates," we may fancy him concluding. "I perceive here an elaborate preparation for many things: especially for reading the books of extinct nations (from which indeed it seems clear that these people had very little worth reading in their own tongue); but I find no reference to the bringing up of children. They could not have been so absurd as to omit all training for this gravest of responsibilities. Evidently, then, this was the school course of one of their monastic orders."

Now, although Spencer doubtless had in mind the training of future parents in hygiene, physiology, child-psychology, and ethics, his words are equally true and pungent when applied to our present failure to give instruction concerning the origin, historical development, economic and educational functions of the home as a social institution performing a unique public service. Two generations have passed away since Spencer made his vigorous plea for education in parenthood,

¹ Presented at the Washington Meeting of the American Home Economics Association, December, 1911.

² *Op cit.* (Burt ed.), pp. 44, 45.

yet still our women's colleges are wedded to a curriculum largely traditional and academic. To be sure, professional and technical schools have sprung up which give valuable training in cookery, in household chemistry, in dietetics, in textiles and their manipulation. Here and there material is presented bearing upon the wise and effective expenditure of income to secure the most nourishing food, the best clothing materials. All this is good, and bears more or less directly upon the problem of home-making. But few of our eastern colleges and finishing schools for women have introduced these courses, perhaps because they elect still to regard them as illiberal. And even in those professional schools and state universities where ample recognition is afforded domestic science and art, I submit that it might be quite possible for a young woman to pass through courses of instruction in these subjects without carrying away an enlarged vision of their relation to the problems of the modern home. Even if it be conceded, for purposes of argument, that the student *does* see the application of much that she studies to the large question of home-making, and is intelligently interested in this aspect of the subject, it still remains true that such technical courses cannot supply all the knowledge which seems essential if young women today are fully to appreciate the meaning of parenthood and home-making in this twentieth century.

On all sides at the present time are heard predictions that the family and the home—at least in their present form—will ultimately disappear; that disintegration, as revealed in the rapid increase of divorce and family desertion, as well as in the decrease of the marriage rate among young men and women of the upper middle, professional, and working classes, is so rapidly proceeding that the monogamic family must be either reconstructed or abandoned. Economic pressure is preventing the establishment of homes on the one hand and is interfering with their proper management and oversight on the other. Closely bound up with economic causes is the awful fact of prostitution which is responsible for the wreck of thousands of promising homes.

The spirit of individualism, born of the great Enlightenment of the eighteenth century, and animating first only the men, has gradually stirred to eager life the women of the race. These women, so recently and incompletely emancipated, were, in the first thrilling joy of freedom (partial though it was), perhaps more individualistic than the men. Their assertion of personal rights, their eager claim to the full development of personality, natural as it was and is, has, no doubt, further complicated the already baffling problem of the maintenance

of harmonious and enduring family life. But, it should promptly be added, that nothing in modern life is more significant than the awakened social spirit of the women of today. More clearly than do men, if we may judge by current social literature, they appreciate at least some of the phases of the complex questions concerned with the modern home. Ellen Key, Selma Lagerlof, Helen Bosanquet, Olive Schreiner, and Elsie Clews Parsons, women of broad intellectual grasp and vital moral purpose, have each pointed out in their writings one or more of the factors that enter into this present-day problem and have offered solutions or suggestions of varying worth.

Yet, although the issue is rapidly becoming a burning one, no hint of it is reflected in the academic or professional work of our higher schools and colleges. It is as if we thought our institutions of learning were especially designed to turn out classicists or research workers in history and science, or teachers of household arts and allied subjects to girls who themselves are preparing to be teachers. Nowhere in the scheme is there any explicit recognition of the fact that a large percentage of the young women graduated—at least from the colleges of liberal arts—will, before many years, become home-makers and in all probability be confronted with knotty situations for the untangling of which they are but meagerly prepared.

How may we account for this indifference, apparently shared by all classes of educators? In the first place, it is largely due to the proverbial inertia of any long-established institution like education which has staked out its field and developed its methods. But perhaps as important a contributing cause may be found in the fact that, although social self-consciousness, if I may use the expression, has been rapidly gaining ground since Auguste Comte coined the word "sociology" and outlined its problems, yet society has only very recently been willing to turn this self-analytical, self-critical spirit upon its favorite institution, the family. Only a few years ago, when a storm of criticism was directed against Mrs. Parsons' book on *The Family*, because it merely suggested that modern unsatisfactory conditions as regards marriage might authorize the experiment of trial marriages, Professor John Dewey remarked to a class of graduate students that the one institution which society was as yet obviously unwilling to subject to calm and critical analysis was the family. And this reluctance is not difficult to understand. With marriage and the family the heart-strings of most of us are interwoven. Our deepest and most sacred memories are bound up with home, father, mother, husband, children.

Yet, within the last five years, the change in attitude of intelligent men and women toward this matter is truly remarkable. The problems concerned with the family and its successful maintenance, both from a personal and a broadly social viewpoint, are being investigated and discussed not only with earnestness but with hopeful evidences of scientific spirit and method. It may, then, be hoped that, before many years, inertia and prejudice will have given way, and courses on the origin, history, and present-day conditions of the family will have become the subject of impartial and searching study in higher schools and colleges.

Such a course, although as yet too brief to be entirely satisfactory, has been introduced into the curriculum of the School of Household Arts of Teachers College. The purpose of the course, as the writer has conceived it, is fourfold: First, to assist the students in perceiving how present conditions, customs, and ideals have come to be, and in appreciating how deeply they send their roots back into antiquity; secondly, to use this historical knowledge as a basis for understanding the present situation of the home in its economic, social, moral, and educational aspects; thirdly, to arouse in every young woman a sense of the dignity of the home and of the enormous social service it has always rendered—a service to which women have been by far the largest contributors, since they have built up the family through maternal love and chiefly sustained it by their daily care and sacrificing efforts in the one sphere allotted to them; and fourthly, to awaken in the students an alert and dynamic interest in all modern questions concerning the family and its functions, an interest which shall lead them to continue their study and inform themselves widely on these matters, after the course is concluded, and to ally themselves with such sane and wholesome movements as may develop for the improvement of the present situation.

In the first place, the Teachers College course is genetic, endeavoring to preserve some degree of historical continuity, although this is not always apparent. Yet it is quite possible that under different conditions the idea of continuity might well be sacrificed to some other guiding principle which more satisfactorily met a specific situation and need. For example, in talking over the organization of a historical course on the home for young women who were preparing to go out as social workers among a factory population largely foreign, it seemed best both to the prospective teacher and myself to make a study of past and present family life and ideals among Bohemians,

Russians, Poles, Italians, and other European races. Such an approach would manifestly be better adapted to the needs of this group of students than the one pursued at Teachers College.

In the course as given in the School of Household Arts a beginning is made with the primitive family. The origin of marriage and the family, the different forms they assume among various savage peoples, the status of women and children, the loose character of the marriage tie leading to frequent divorce, the economic function of the family in primitive society, and its further social service as an educational agency are particularly emphasized. Such a study should make ample use of the accounts of reliable anthropological writers and travelers concerning the types of family existing today among groups very low in the scale of civilization, such as the Australian aborigines, the Veddahs of Ceylon, and the Fuegians of South America. The students may be led to perceive the principle, so convincingly maintained by Westermarck, Fiske, and others, that marriage, in the sense of a union of the sexes persisting beyond the birth of offspring, is an outgrowth of the family, not the family of marriage. The sex instinct alone furnishes too unstable a basis for an enduring family relation; whereas the helplessness of the human infant, together with the great fact of maternal love, and the need of both mother and father in the protection of the child during a period of varying length have been the potent causes of the development of home and family. Such a principle, once clearly perceived, may be judiciously utilized as a standard by which to estimate the function of the family in this twentieth century. If marriage in its origin grows out of the needs of helpless offspring, it is not unreasonable to assume that the procreation, nurture, and education of children is the primary function of the family today. I am quite aware that there are individuals who will contest this point and maintain the right of every man and woman to the full completion of his or her life through marriage, even though this union be designedly unfruitful. But fortunately for society this conception of marriage is at present confined to a small though probably increasing minority. Students who once fully appreciate that the family is a social institution not alone furnishing to society the raw material of its future citizens, but training these unformed natures in harmony with usages and ideals sanctioned by social experience, have gained an insight into the dignity and meaning of the home which will guide their thinking and their conduct with regard to the whole problem of the family.

The primitive family illustrates how material apparently remote

from present-day life may be made to furnish its quota of valuable suggestion for the understanding of modern conditions. The Hebrew, Greek, and Roman families illustrate in varying degrees the patriarchal type in which the father, or the oldest male member in the male line, is the undisputed and revered lord of the household, including servants and slaves. The relation of the patriarchal family to pastoral life, its connection among the Greeks and Romans with ancestor worship, the status of women and children in these varying types of patriarchal family, and the influence of this status upon home life and education are a very few of the topics which may be discussed. The evidences in Genesis and Deuteronomy of marriage by purchase and by service among the Hebrews are clear enough, although in the age of the Talmud the latter had disappeared and only the symbols of the former remained. The changing status of the Greek woman from Homeric times to historic, her relative freedom and dignity in the earlier age, and her degradation almost to the Oriental level in the later, form material for interesting and suggestive study. The use of source material in working out a conception of Greek family life cannot be too strongly recommended. The *Iliad* and the *Odyssey*, in the admirable translations of Andrew Lang, furnish fascinating material from which to deduce conclusions as to the family of the Homeric age. This early account may be contrasted with the picture drawn by Xenophon in his *Economics* of the position of the Greek wife in the fifth century B.C. when she had become little else than a housekeeper in the narrowest sense, with too little education to be a companion to her husband or an efficient mother to her children. The *Electra* of Euripides, in the delightful translation of Gilbert Murray, affords yet another contemporary picture of sex relations and family ideals in the same period.

When we turn to Rome, the purity and dignity of the Roman woman in the early stern and simple period, the admirable character of the home as the school of practical arts and moral and civic virtues, may be contrasted with the low ideals of marriage, the prevalence of divorce and adultery, the marked decline in the educative influence of the home, so characteristic of the late Republic and the Empire. Probably, as Professor Ferrero has suggested, a striking parallel could be drawn between imperial Rome and the American republic of today. Apparently there was much the same emancipation of woman then as now, followed by her eager participation in public affairs. Then, as now, education had largely passed from the home to the schools.

Marriage had always been a civil contract in Rome, in which neither State nor religion interfered. Today marriage has become largely a civil matter, despite the age-long hold of the church upon it, and there are not lacking individuals who prophesy that in the future it will once more take its place as a purely personal concern. Finally, the laxness of the marriage-tie, the decline in the birth-rate, and the low moral ideals too prevalent among the wealthy and leisure class are as characteristic of one civilization as the other.

With the introduction of Christianity came the warfare of the church against abortion, infanticide, and the divorce evil. But the student should be led to see how very gradual has always been the work of substituting new ideals for old customs. In the age of Justinian, divorce was still largely a personal matter even among professed Christians and it so remained until the ninth century. In connection with this early Christian period one fact more may be touched upon very briefly. The attitude of the western Church Fathers, Tertullian, Jerome, and Augustine, toward marriage was so hostile, their conception of the marriage state as revealed in their writings so ignoble, that a blow was struck at the family from which it had hardly recovered at the age of the Renaissance.

Passing rapidly over the Middle Ages, I shall suggest only a very few subjects from the wealth of material for fruitful investigation offered by this period. The half barbaric marriage customs and ideals prevalent among Teutons, Franks, and Anglo-Saxons, before and for some time after their conversion to Christianity, offer interesting subjects for study. Evidences of marriage by purchase are clear enough in the old folk-laws prior to the ninth century. Payments of money or land or cattle to the father of the bride before marriage and later the famous "morgen gifu," or morning-gift to the wife on the morning after the marriage-night, point unmistakably to the earlier purchase of the wife, although probably this need not be interpreted to mean that she was regarded as a mere chattel. Marriage in these rude days was a private contract between the parties concerned into which little or nothing of a religious element entered.

But marriage does not remain a lay matter throughout the Middle Ages. The history of the gradual intervention of the church in the marriage ceremony makes a suggestive field of study. Yet it was not until the Council of Trent, which sat from 1545-1563, that all marriages not contracted in the presence of a priest and two or more witnesses were declared void. The independent British Isles, however,

refused to accept this decree with the result that the private, contractual marriage, the present day "common law marriage" was valid in that country until 1753. Perhaps it is not generally known that "common law marriage" is still regarded as valid and binding in several of the states of our Union.

Perhaps the most valuable topics in the whole vast field of the Middle Ages are concerned with the home as an economic institution. A sharp sex division of labor, giving to men the spheres of warfare, tillage, and management of feudal estates, and to women a vast variety of household occupations, was widespread. Women in those days were producers and manufacturers in a very real sense. The flax industry was entirely in their hands, from the sowing and harvesting of the flax to the manufacture of household linen and garments from the spun and woven threads. So with the wool industry until late in the Middle Ages. Every woman, high or low, knew how to card, spin, weave and dye cloth, and the homes were hives of industry. Wright, in his delightful work entitled *Womankind in All Ages of Western Europe*, states that there is ample evidence to show that women served not only in the capacity of midwives, but as physicians and surgeons throughout a large part of the Middle Ages. Their empirical knowledge of medicinal herbs and their preparation and use was handed on to the women of Post-Renaissance days. From these facts and many others the student may be led to appreciate the important economic contributions of wives and mothers throughout these centuries, and the lack of correspondence between their inferior social and legal status and their productive services.

With the Renaissance came the abandonment by Protestants of the Catholic dogma of marriage as a sacrament and the gradual substitution of Luther's idea of the family as the unit of the social structure, in which the God-fearing father and mother appear as the most valuable assets of the state. The position of women in the home slowly improved with the advance of civilization. Dominant women were not unknown in the Middle Ages, but during the Renaissance centuries we are struck by their number and influence. Elizabeth of England, Marguerite d'Angouleme, described in her epitaph as "Queen of the Muses," Isabella D'Este and Vittoria Colonna, friend and adviser of Michel Angelo, are but a few of this shining band of cultivated and forceful women.

After the general effects of the Renaissance upon woman and the home have been treated, a selection from among the mass of material

relating to the homes of the seventeenth, eighteenth, and nineteenth centuries becomes imperative. Not all European countries can be considered, nor can America, from colonial times to the present, receive thorough treatment. Therefore it has seemed best to limit the field to a cursory study of England and the United States, since the influence of English common law and family customs upon this country is unquestioned.

Sixteenth century England reveals the husband still the unquestioned head of the household and its members. As yet the housewife has few privileges and many cares. Yet there is clearly a tendency to educate the daughters of the nobility and well-to-do gentry in the whole circle of the liberal arts. Queen Elizabeth, Lady Jane Grey, and the daughters of Sir Thomas More are not the only instances of liberally educated women that the period affords. This and the succeeding century are marked by a great improvement in the architecture and furnishing of English homes and in consequence a gradual refining of home life. "Books of courtesy," laying down detailed rules of etiquette for meals and social gatherings, become quite numerous in the fifteenth and sixteenth centuries and serve a valuable purpose in the refining of manners. Even the homes of the burgher class show many of the comforts, conveniences, and even elegancies of life. This is the age when domestic industry undergoes modifications which are prophetic of the industrial revolution. The cloth-making and stocking industries become prominent owing to the influx of Dutch and French weavers with improved implements. Manufacturing, to be sure, is carried on in the homes, but there is greater division of labor, control is exercised by a master outside, who rents out implements in the stocking and silk manufacture and pays employees. Moreover certain industries are being drawn from the control of women to be taken over by men. Baking, brewing, candle-making, tailoring, milling, and cloth-manufacturing, are no longer exclusively home industries. Slowly mediaeval England is becoming modern and the homes reflect the change in ideas and customs.

These modern tendencies are far more evident in the seventeenth century when the home emerges as a strong and unified institution. The century is marked by the greater unity of husband and wife, growing out of the encouraging tendency for marriages to be based on mutual love and respect. Yet the husband legally retained full control over the wife, although in many homes the right was probably not exercised with harshness. The English household in the seven-

teenth century was highly organized; servants were regarded as part of the family and received moral and religious instruction much the same as the children. The English wife spent the bulk of her time in supervising the varied activities of her household which, in the country at least, was largely a self-sustaining unit. The educative influence of the home was very noteworthy. Religious and moral education tended to pass rather more from church to home than was the case in the Middle Ages. Family prayers, attended by the entire household (often including field hands), daily home instruction in religion and morals, were characteristic of many households—even outside the Puritan sects. Discipline was severe, even harsh, although there are evidences in many homes that this severity was relaxing and giving place to gentler methods. Outside of moral and religious training, the education of woman was still largely determined by her future sphere which was universally conceived as marriage and housewifely duties—both in England and America. Parental power was still almost absolute in respect to the marriage of children, although daughters who dared to rebel were allowed right of veto and in some instances of choice. To be an old maid was a fate few women aspired to in those days when woman's only field of honorable activity lay in the home. The whole family, including near relatives, were often actively concerned in marrying off some luckless damsel whose dowry was too small to attract suitors, and who thus was confronted with the truly mournful fate of a dependent in the homes of her reluctant kin.

When the eighteenth and nineteenth centuries are reached, the most pregnant topic for discussion is of course furnished by the industrial revolution with its resulting transformation of domestic industry and home life. With the development of mineral resources, the beginnings of capitalistic labor, the substitution of machinery for hand work, the household as the unit of production tended to disappear and the old stability of economic life was threatened at its root. Men, women, and children, formerly independent workers in the home, became, under the rapidly expanding factory system, mere "hands," entirely dependent on the wages doled out by capitalists. The decline of home apprenticeship and the extension of poor relief were the immediate results. But these economic changes led to far-reaching transformations in the integrity and influence of the family in both England and America. At this time and during the whole of the nineteenth century wives and mothers, needed to maintain the home, were drawn into the current of industry. In the English textile industry alone,

between 1841 and 1891 the number of males increased 53 per cent, the females 221 per cent. The result was inevitable; the old, sturdy home training declined, the family tended to disintegrate into a number of units representing independent wage-earners, who sleep and eat under one roof but have less in common than ever before. The influence of parents upon offspring perceptibly decreased, not only because the children early became economically independent, but also because the parents had too little time during their early childhood patiently to shape and influence their lives and characters.

Other significant tendencies of the nineteenth century which call for treatment are concerned with the very gradual extension of larger property rights to women, leading, in England, to the Married Women's Property Act of 1882. Contemporary with this was the movement looking to the broader and more liberal education of young women. The girls' boarding schools, so popular in the eighteenth century, which bestowed a smattering of music, French, embroidery, and manners upon conventional young misses, trained to meet the artificial ideal of clinging womanhood current in that conventional age, gave way in time to more substantial types of schools. By the middle of the nineteenth century the individualistic movement of the age of Voltaire and Rousseau had made itself felt even in the lives of women. Colleges for women—Queens in 1848, Bedford in 1849, Girton in 1869, Newnham in 1871—offered rich and broadening courses to English girls; and similar institutions developed in America, beginning with Mount Holyoke College, opened as a seminary in 1837. In connection with this movement the students of the course should be led to consider how far this intellectual emancipation of women has influenced marriage and home life at the present time. Is there ground for the assertion so glibly and frequently made that a relatively small proportion of college bred women marry? Finally, a fruitful subject for the students' investigation would be the legislation affecting the social and legal status of women in Europe and America, since this has a very obvious bearing on family life and relations. The tendency to put women into full possession of their own property and earnings, to make them equal guardians with the father over their children, to establish *in theory and in law* although not in public opinion, the single standard of morals, to grant equal divorce rights to husband and wife, to advance the "age of consent," and to increase the penalties for rape and seduction are only a few of the modern movements designed to grant protection to young girls, and to secure for wives and mothers

those tardy rights which indicate their admission to the ranks of free individuals with personalities to be reckoned with.

This review of the course may, perhaps, serve to make plain one guiding principle which should animate the whole work. How far does this material help the student better to understand certain customs, attitudes, ideals that play a prominent part in modern marriage and family life? If the facts and principles under consideration seem at present to *lead nowhere*, however curious and interesting they may be, such facts should be relegated to the background. There is ample suggestive material shedding light on the more immediate past and on the living present, with its urgent problems and needs, to justify the application of this drastic principle. Moreover the course covers the history of civilization in one important aspect, and time is all too brief for its demands.

In conclusion, I shall indicate, very briefly, the lines along which the analysis and study of present-day family conditions might proceed. As has been suggested at the beginning of this paper, the family of the twentieth century is in so unstable and fluctuating a state as to suggest its radical reconstruction if not its ultimate disintegration. Of course the most noteworthy feature of family life today is the increasing prevalence of divorce, which reveals a rate of increase far greater than that of the population. According to the special *U. S. Census Report on Marriage and Divorce* published in 1909, the divorces granted in the decade 1890-1900 increased 66.6 per cent over the preceding decade; while the rate of increase of population for the same period was only 20.7 per cent. Apparently for every 15.6 native marriages celebrated in the United States one is dissolved by divorce; and this melancholy proportion would be one divorce to 13.9 marriages if over 100,000 divorce cases had not been thrown out because the court records did not declare the place of marriage of the parties.³ Surely these facts reveal a condition calling for the intelligent understanding of educated young women.

Of all causes for divorce in the United States, desertion is by far the most frequent, furnishing, according to the Census Report, 38.5 per cent of all assigned causes in the years between 1902-1906. So pressing an evil has this become, so fruitful a source of blighted homes, that the Associated Charities of Boston, Philadelphia, Washington, and New York have conducted investigations into the matter and have published

³ *Op. cit.*, Part I, pp. 22-24.

reports which seek to discover the extent and causes of family desertion. The publication of the Charity Organization Society of New York on Family Desertion states that "the usual deserter is not a man who is physically weak or ill and discouraged, nor desperate because of bad housekeeping or his wife's ill-temper; he is a young, able-bodied man, who leaves because he is well able to take care of himself and desires to indulge a selfish or vicious impulse, or to avoid ordinary cares or some unusual trouble. Desertion, therefore, indicates a serious moral defect."⁴ Again this would appear to be a subject in which young women educated for full social membership should be intelligently interested and informed.

Among the numerous hostile forces at work to undermine family life today none is more insidious and terrible than that ancient evil of prostitution. The reports of the Chicago and Minneapolis vice commissions make clear enough the widespread character of this institution as well as the existence of an organized traffic in vice involving the lives of thousands of ignorant girls. The close relation between vice and economic conditions can no longer be ignored by serious men and women. Fifty-nine per cent of all young women in the United States between the ages of sixteen and twenty are employed in some gainful occupation. Girls in stores and factories, living on a weekly wage of six dollars or less, may easily learn that disreputable women have an earning capacity more than four times greater than their own. And many of these girls are adrift from home restraints and influences. In the words of Jane Addams, "at the present moment no student of modern industrial conditions can possibly assert how far the superior chastity of women, so rigidly maintained during the centuries, has been the result of her domestic surroundings, and certainly no one knows under what degree of economic pressure it may give way."⁵

But prostitution does not confine its debasing influences to the wage-earning class. The evil has extended its tentacles into all classes of society, too often bringing disease and disillusionment to the wife and an inheritance of bodily infirmity or permanent blindness to the innocent offspring. These are subjects we do not enjoy discussing even if we do not wholly condemn their discussion: yet they are intimately bound up with the matter of wholesome and happy family life, and it is highly doubtful whether we as students of the family as an institution are justified in longer turning our backs upon them.

⁴ *Op. cit.*, p. 9.

⁵ A New Conscience and an Ancient Evil, *McClure's Magazine*, December, 1911, p. 232.

Another active factor in the present unsatisfactory condition of family life lies in the participation of large numbers of married women in industrial and professional life. The deplorable effect of the removal of wife and mother from the home during the long working day is apparent in every country of Europe and America. The crèche in France, the day-nursery in America, represent public attempts on the part of an awakened society to fill the breach and supply something of the care and oversight of the true mother in the home. It seems clear enough that this need for the daily wage which the woman can add to the family income is not the sole cause of the enormous influx of women into all forms of gainful employment. The inevitable result of the intellectual and economic emancipation of woman has been her eager desire to share in the world's work, to shoulder her portion of the labor and thought, the aspiration and effort which are the price we must pay for the betterment of human life. Shall she or can she be excluded from active participation in professional life, from assuming her full share of the social burden, from taking active part in all movements looking to the improvement of the conditions under which some or all of us live? Students should be led to appreciate the complexities of this problem in its full bearing upon the future of the home and of family life.

But the last word in a historical course on the home should not be an analysis of present-day menacing conditions. What can be done by earnest men and women to initiate a better state of things? At this point the instructor may, perhaps, do the most helpful, because the most constructive and vital work of the whole course. The solutions offered by such social writers as Professor Howard, August Bebel, Ferrero, and others for some of the problems of modern family life may be presented and discussed, pro and con. For example, the question of the enormous increase in divorce may well lead to a consideration of such remedial measures as the greater restriction of marriage under conditions fixed by the state, the securing of uniform marriage and divorce laws throughout the Union, and the education of adolescent boys and girls in the higher social meaning of marriage and the family. Indeed the matter of the sex education of boys and girls can hardly be much longer ignored by educators. The homes shows an increasing tendency to shunt this added burden to the shoulders of the school. Fathers and mothers with a prudishness hard to condone, too often resolutely shut their eyes to their children's need of wholesome instruction in the facts of reproduction. Shall the school,

then, organize courses in nature study, in biology of a simple sort, and in physiology and hygiene specially adapted to young men and women in the adolescent period? If it be urged by the students that parents can more effectively give this instruction, then the problem shifts. How can the school get hold of fathers and mothers, give them the knowledge which they lack with surprising frequency, and arouse within them a sense of the importance of furnishing their sons and daughters, at the critical time, with the information and guidance so essential to their future well-being? Let the students, if possible, fully appreciate the need of sex education in its broadest sense, and then lead them to think upon and freely discuss means and obstacles.

The same question comes up again when the subjects of family desertion, the production of offspring far beyond the family means, prostitution and their remedies, are discussed. Indeed, if by one means or another, the coming generation could be made fully to understand the supreme value of sexual self-control, for the individual and for the community, the dignity and seriousness of marriage, and the essentially social function of the family and the home—a function which no other institution yet evolved can in any degree perform—it would seem as if a long stride had been taken in solving the whole baffling problem of the family. And, with the discussion of this burning educational issue, upon which the future of the home so largely depends, the course may well come to an end.

BIOCHEMISTRY: ITS PLACE IN THE CURRICULUM OF THE COLLEGE OF LIBERAL ARTS FOR WOMEN.¹

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It is with pleasure that I come here to plead for a place for biochemistry in the college of liberal arts for women. I am in hearty sympathy with the recent action of a branch of the Association of Collegiate Alumnae in urging the introduction of Home Economics into our colleges for women. In 1883, Mrs. Richards was the prime mover of the Sanitary Science Club, a group of women who felt the need of study of this kind and who declared in the introduction to the book which they published later that the "expenditure of time and effort had been amply repaid by positive and satisfactory results." I studied sanitary chemistry with Mrs. Richards at the Massachusetts Institute of Technology, and was associated with her on a committee appointed from the Women's Education Association to devise a working program for a manual training school for girls in Boston. Our object was to make women efficient in their own domain, efficient at home, and we believed that, with the new knowledge which research had made available, training was necessary if this knowledge was to be diffused. It is instruction along these lines which our alumnae are now urging upon the trustees and faculties of our colleges. Classically educated myself, I got my first stimulus from Mrs. Richards for the work which has been a continuous happiness to me.

Dr. Charles W. Eliot, in an address before the Association of Collegiate Alumnae in 1908, said that the effort in the early years of the existence of women's colleges was to demonstrate the fitness, the mental capacity of women, for the same education which men had been receiving for years. Mary Lyon, busy in 1838 in founding Mt. Holyoke College, demanded a higher education for women who might thus fit themselves to fill the places which were waiting for them. Mary Lyon was far ahead of her time. What woman without special train-

¹ Presented at the Washington Meeting of the American Home Economics Association, December, 1911.

ing would today dare to offer herself as a candidate for a school position? The Girls' Latin School founded in Boston in 1878 through the efforts of many women in that city was an expression of the conviction of these women that given an even chance, girls could prove themselves equal to the demands of a classical education. The steady growth of this school with its rigidly maintained high standard has justified the belief of the founders. Wherever we turn, we find the same results: Fears that college women would not marry are not borne out by statistics; forebodings that health would be ruined are removed by records of our gymnastic departments which show improved physical conditions, due probably to the regularity of college life; doubts of the ability of women to maintain lines of thought are dispelled by the long lists of women filling positions inside our colleges and outside where intellectual worth and executive power are the prerequisites. Miss Thomas at Bryn Mawr, Miss Pendleton at Wellesley, and Miss Woolley at Mt. Holyoke are a few illustrations.

The demonstration of our ability to cope with an education is complete. Now we face a new situation: What education is best? To quote Dr. Eliot again from the same address: "We are free now to arrange for an education for women which is specially adapted to the needs of women." And again: "The prime motive of the higher education of women should be recognized as the development in women of the capacities and powers which fit them to make family life more intelligent, more enjoyable, happier, more productive,—productive in every sense, physically, mentally, and spiritually." Time was when Dr. Eliot himself did not believe in higher education for women, as is shown by an episode said to have taken place in a Harvard faculty meeting. President Eliot had been pleading the cause of Radcliffe, then known as "The Annex." One of the professors remarked that he remembered a similar meeting held in that very room some ten years before, when the chair had expressed an opinion exactly the opposite. "Well, sir," said Dr. Eliot, "if you are interested in that as a matter of history, I am very glad. As for myself, I hope I have learned something in ten years. We will proceed to vote," etc. He has become one of our strongest advocates and we desire to justify his faith in us.

And what does study of the present condition of college women show us? We find the classics and mathematics deserted, after the requirement of the first college years has been passed, except by those who have marked talent for these studies or who wish to fit themselves to teach them. We find them electing enthusiastically courses in

history, sociology, economics, and literature, cultural courses all, and tending to fit the students to fill their places in the social community to which they must go on leaving college. And we find many alumnae engaging in sociological work to such an extent that this is becoming a profession rivaling that of teaching, as eminently fit and proper for the educated woman.

What place does science fill? In my own college, Smith, a year's work in either chemistry or physics is required of every student; a class usually divides itself about evenly between the two subjects. Thereafter all work in these departments is elective. This year about 25 per cent of the class in elementary chemistry have continued it and 20 per cent will continue it through the rest of their college course. This is 10 per cent of the whole class. I suppose similar statistics could be gathered in other colleges. My study of the catalogs of our eastern colleges divides them into two classes: Those which teach, and those which do not teach, Home Economics. The former, such as Simmons and Teachers College, might be called technical schools; the latter, colleges of liberal arts. These technical schools are doing a splendid work, not only in training women for a professional career, but in raising the standard of living and in applying to daily tasks intelligent methods, lifting the drudgery of housekeeping by applying the scientific methods of the laboratory. The agricultural colleges are offering courses to the farmers' wives. At a reception in Geneseo a few years ago a woman spoke enthusiastically of a recent lecture which had been given by Miss Van Rensselaer of the New York State College of Agriculture and said, "I find I have been feeding my family on the things I ought not to have fed them on. I thought I was giving them of the best, whereas it was the worst possible combination. I am going to change." Perhaps she was reforming on insufficient knowledge but surely the desire that her family should benefit by the improved methods was praiseworthy. Cooking and sanitary science are being introduced into the grammar and preparatory schools all over the country.

In the meantime what are our colleges of liberal arts for women doing to give their students a share in the widespread desire for better living conditions? Almost without exception they offer a single course only, and that in food analysis, of three or five hours in a single semester! This course was introduced as a concession to the demands of alumnae, is taken only by the most advanced students in chemistry, and is of an exceedingly technical character.

What about the large numbers who graduate without taking more than the required chemistry? What of those who have taken no chemistry at all? Many of these begin at once to teach. They have not increased their knowledge of the benefits of science as applied to the welfare of man. Is it not possible to introduce courses of less technical character? Statistics say that there are some 75,000 women in the colleges of the country. They should be the leaders, trained in logical thinking with power of concentrating their attention on the matter in hand. Could we infect them with our enthusiasm for scientific housekeeping, there would be no household problems!

Professor Giddings defines the *home* as the place of development of the social individual, economic and cultural. We have misplaced the emphasis hitherto; we are devoting our energies to the city and state as the place of development of the individual rather than to the home. Public agencies have long been at work for his *cultural* development and now measures are being urged for his economic development. The economic valuation of a man is \$20,000. This is based upon efficiency, which is largely a matter of education and health, assets for which we are all eager. The value of education we have long recognized and have provided for in our school systems; the importance of health is now coming to our attention. Modern methods are preventive rather than curative. We have discovered a new truth in the old adage, "An ounce of prevention is worth a pound of cure." In olden times a surgeon washed his hands *after* an operation; now he washes them *before*! Insurance companies are providing nurses for their sick policy holders, a well man being of more value to them than a sick man. In the crowded city districts mothers are given instruction about the care of their babies and milk suited to the need of each child is provided at small cost. These precautions, education and proper diet, have tremendously decreased the infant mortality.

There is a carefully regulated diet for the invalid. But what about the well man? Does he not need the right food, food suited to his occupation to keep him in fit condition in order that he may live at the point of maximum efficiency? Nature has given each of us a wide margin. Modern surgery removes organs and transplants organs and yet active life continues. We can best conserve life by conserving the energy which comes from the food we eat and the air we breathe. We have opened our windows and are less afraid of a draft than we are of breathing vitiated air, but we have not yet very generally given thought to the food we eat. As long as it is cooked according to fa-

miliar standards, we accept it. President Jesse said in 1905 that "women are the prime factors in society and should realize that life for themselves and others rests upon a physical basis and that life and health depend in large degree upon the choice of food, the preparation of it, household sanitation, and household economics." We have not universally accepted this point of view. The attitude of the ordinary individual is well illustrated by a discussion between two students on the relation of chemistry and zoölogy. "Why," said one, "there is no relation. Zoölogy is life and chemistry is atoms!"

What we need to convince people of is that chemistry is life, that it is fundamental, and that it enters into all the reactions of living. Panama has become a health resort through the agency of the scientist. The chemistry of foods, the chemistry of life, animal and vegetable—biochemistry to use the new term—is very complex and it was not possible to teach it as a science until organic chemistry, pure and simple, had done its work of analysis and synthesis. But Pasteur, Fische, Kossel, Ehrlich, to mention only a few, have shoved ahead our knowledge of the carbohydrates, the proteins, the pigments, and the metabolic processes in the cell until now we have the material at hand for some scientific study of foods and food values in our college laboratories.

William H. Edwards, commissioner of street cleaning in New York City, is reported as saying this to the Vassar students:

The housewife plays a more important part than she realizes in keeping the streets of our cities clean. Her standards of cleanliness in the home must be in evidence outside the house. Regularity in the output reduces congestion of refuse; proper separation of refuse adds to the sanitary conditions of removal. No woman who is a good housekeeper will throw papers or waste in the street, and most street litter was first thrown away by some thoughtless hand. Her husband will not throw his newspaper in the street. Her children will not litter our thoroughfares with all sorts of rubbish but will take a certain pride in helping to keep the streets clean.

The teachers in our public schools have the influencing of the children largely in their hands. Every teacher has the opportunity to teach patriotism to every little citizen by training him in loyal thought regarding his own city. She need go no further at first.

At Smith College in the department of chemistry we believe that scientific work is cultural; that scientific habits of thought are liberalizing; that it is possible to lay the foundations for a professional career whether that career be home-keeping or industrial chemistry. The course in general chemistry may be followed by a course of lectures

on the applications of chemical facts and principles to common life. We have a course in sanitary chemistry, a very technical course, such as is given at the Massachusetts Institute of Technology, one which makes a student familiar with the methods in use in our government and analytical food laboratories and which studies the problems of public health. We have also a course running through the year in what we have called "studies in fermentation." Here the study of the carbohydrates and the relation of the yeast cell to the carbohydrates takes us into the domain of biochemistry. Molds and bacteria follow naturally. After we have learned the technique of bacteriology we isolate and study the organisms gathered on a Petri-dish during a few seconds exposure in a room just swept or one just vacated by a class. We isolate and study the organisms collected from the daily supply of milk. Our constant object is to compare the standard uncontaminated material with the fermented or changed material. The importance of the by-product is dwelt upon and the relation of the reaction "in vitro" to the reaction "in vivo" is emphasized. Much of the reading in connection with the course has to be magazine reading and this too lays stress upon the fact that most of this work is recent, although the beginnings date far back before there was any science of chemistry.

There has been one unexpected development of this course in which the faculty of the department are interested. Fifty per cent of the students have entered laboratories as assistants or have gone to medical schools. There seems here a rapidly enlarging field for women workers. The eagerness with which these opportunities are sought show how ill adapted many of our alumnae feel for teaching. It is no part of our intention to become distinctly a training school for technical chemists and yet our students want to know that the long afternoons spent in the laboratory do prepare them if necessary to do a real work with a paying wage. In our academic circles as elsewhere the stamp of success is that it pays. There seems to be slowly developing a consciousness of the importance of this kind of work for women, and opportunities for its practice are rapidly increasing. It is an interesting development and as such we shall do what we can to make it prosper. It is not, however, our chief aim. Our chief aim is to give these students a liberal culture, to develop such trained minds that logical thinking and sound opinions can be brought to the solution of the problems which they meet. The most absorbing work of our research laboratories today is bridging the gap between the chemistry

of the test tube and the chemistry of the living cell, the most wonderful laboratory of all. But we know that the discovery today in the laboratory is the commonplace necessity of the world tomorrow. Already much of this biochemical metabolism is familiar to us and its application has revolutionized many industrial and agricultural processes. Why should we allow these women to go out without the faintest inkling of the existence of these discoveries? Why should they perpetuate the theory that alcohol and carbondioxide are the sole products of the fermentation of sugar when the list of known by-products is already large and we are not yet at the end?

We are constantly hearing about the high cost of living. Mrs. Richardssaid it should be the "cost of high living." Whichever it is, we read about commissions of national and international scope appointed to investigate these matters and find a solution. Crops are large, we have world markets, and yet prices continue to go up. Let us inform the women; they are the buyers, very largely, and as such affect the supply and demand. If they were resourceful and could substitute some other method in the household for the one which no longer pays, as is the way in the industrial world, this difficulty of the high cost of living would largely disappear. It is not protection by government that we need so much as a wider education in the practical things of daily living. Pasteur gave his attention to the infinitely little and left the world his everlasting debtor. What is the use in spending years in the study of literature and art only to find ourselves at the end of it unable to cope with the industrial condition in our own household! Why try to regenerate the so-called slums all the winter, when we are ourselves forced to live in a summer boarding house where dairy and culinary methods are the methods of our grandmothers? First reform our own homes, then reform others. Demand for more up-to-date methods, bacterial and chemical, would stimulate the supply and decrease the cost. But we cannot demand that of which we know nothing. Let us educate the women in our colleges in the practical art of living, make them leaders, pioneers, missionaries if you will, for more rational conditions in all matters which pertain to living.

SOME IMPORTANT CONSIDERATIONS IN THE FEEDING OF YOUNG CHILDREN.¹

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Those who are interested in applying the best established scientific principles of nutrition to the feeding of infants find, on reading the literature, a most bewildering array of practices advocated by those who have felt competent to give advice on this most important subject. At one extreme is the method of Biedert² which has been closely approximated in the instructions widely circulated in this country for the guidance of mothers. A top milk containing from 8 to 10 per cent of fat is employed as a basis for compounding the ration, which is made during the first month by diluting this fat-rich milk with three times its volume of water and adding milk sugar in the proportion of 36 grams per liter. This type of ration is the result of the belief, at one time almost universal and still widely prevalent, that the casein of cow's milk is especially difficult of digestion in the stomach of the human infant.

Opposed to this view are the teachings of Heubner,³ who urges that healthy children can be fed large amounts of the proteins of cow's milk without harm. He holds that excess of fluids is especially to be avoided, and is much more harmful than an excess of proteins. Heubner's method of preparing rations is to dilute one volume of cow's milk with one-half volume of oatmeal or barley water.

The recent researches of Czerny⁴ have fully confirmed the contention of Heubner respecting the lack of harm resulting from feeding casein of cow's milk. He has gone much further, however, and has shown conclusively that, contrary to the older views, fat and not protein is the disturbing constituent in the rations of young children. Bren-

¹ Presented at the Washington Meeting of the American Home Economics Association, December, 1911.

² *Kinderernahrung im Sauglingsalter*, 4th ed., Stuttgart, 1900.

³ *Sauglingsernahrung und Sauglings-Spitaler*, Berlin, 1897.

⁴ *Jahrbuch für Kinderheilkunde*, vol. 49.

nemann and Walls⁵ in this country, have fully confirmed Czerny's observations and have advocated the feeding of whole milk poor in fat. Walls in an extensive practice observed even premature infants to digest satisfactorily whole skimmed milk. The U. S. Public Health and Marine Hospital Service has recently strongly emphasized the rationality of this plan of infant feeding in a most excellent discussion of the principles of infant feeding by Dr. J. W. Schereschewsky.⁶

The discovery that fat is the disturbing constituent is distinctly the result of scientific nutrition studies. The well established facts concerning the deportment of excessive quantities of fat in the digestive tract of an infant are as follows: It tends to remain in the stomach longer than do proteins or carbohydrates, and even in moderate amounts tends to delay the emptying of the stomach. This is an important matter when, as in the young infant, the feeding periods follow closely upon each other. While it is in the stomach it is highly probable that no fat digestion takes place, as the recent investigations of London⁷ have shown. This long retention of the food allows the stomach little or no rest before another meal is introduced, and it may not be prepared to secrete a new supply of hydrochloric acid without some delay. This is frequently the beginning of the child's digestive disturbances. The hydrochloric acid which the stomach normally produces as soon as food is introduced serves to check promptly the action of any micro-organisms which may be present. In the absence of this acid bacteria begin at once to develop, generating gas to give colic, and abnormal acids which give rise to "sour" stomach.

After passing into the intestine, a large part of the fats of the food are cleaved into fatty acids and glycerine, by the lipolytic enzyme of the pancreas. The fatty acids readily form, with the calcium and magnesium present, the same insoluble soaps produced by soaps in hard water. Of all the food principles fats and the insoluble soaps formed from them are the most difficult of absorption, and accumulating in the large intestine are the cause in many instances of the persistent constipation so common in young children. The apparent curds in the stools of young children are now known to consist ordinarily of soaps, fats, and fatty acids. Under these conditions the child loses not only a considerable part of the fat of the food, but also suffers

⁵ *Journal of the American Medical Association* (1907), vol. 48; *ibid.*, p. 1389.

⁶ U. S. Public Health and Marine Hospital Service Bulletin 41.

⁷ *Zeitschrift für physiologische Chemie*, 50, p. 125.

a depletion of the calcium supply of its body, so essential at this time for bone formation.

Nature supplies in milk an adequate supply of both acid and basic elements, with a slight preponderance of the latter. When however, there is a loss of lime through the intestine as soaps, an excess of acid elements is left which must be gotten rid of through the kidneys. When we add to the above the fact that fats are oxidized with more difficulty in the body for heat and energy production than are sugars and proteins, the logic of employing fat-poor milks in infant feeding becomes apparent. Clinical experience in this country and abroad has served to strengthen the case against the practice of feeding milks rich in fat or rations prepared by modifying top milks.

The methods of infant feeding in which the rations are prepared by diluting top milks containing from 8 to 10 per cent of fat and adding milk sugar are, in the light of modern knowledge, open to serious criticism for another reason. It has long been assumed, because the salts of cow's milk are present to the extent of more than three times the amount found in human milk, that dilution does not lead to an abnormal salt mixture in the ration of the child. While this is true so far as the total *quantity* of salts present in the final mixture are concerned, it is now well known that a serious alteration in the *character* of the salt mixture is effected by this procedure. Kastle⁸ has recently studied the *balance* between the acids and bases present in the salts of human and of cow's milk, and has shown that while the quantity of salts in cow's milk is much higher than in human milk the degree of alkalinity in the total mixture is almost identical in both. In diluting top milks according to certain systems in common use the alkalinity of the ash mixture given to the infant may be reduced to a half or a third that supplied by a ration of mother's milk. Just how serious may be the consequences of thus disturbing the nice balance between the acids and bases supplied in normal milk cannot be stated with certainty, but we are justified in warning against the possibility of danger in feeding an infant a monotonous ration departing so widely in this respect from the normal standard.

The widespread use of proprietary infant foods calls for a brief discussion. The "baby foods" are of two general classes. The so-called complete foods are made up of condensed milk and sugar, or of milk evaporated to dryness and compounded with partly dextrinized

⁸ *American Journal of Physiology*, 22 (1908).

flours. In malted milks the carbohydrate is principally malt sugar. Now milk cannot be evaporated to dryness without losing in some degree its appetizing and nutritious qualities, as the proteins become altered in the process. Anyone who will give the matter serious consideration should realize from personal experience the difference in dietary value between fresh animal proteins and the corresponding "denatured" articles of commerce. The universal verdict of those who have had large opportunity for observation is that infants fed on such preparations alone and for some time are less resistant to infections and show evidences of malnutrition, especially rickets and scurvy. All such mixtures are made up by formulas supposed to secure an appropriate "balance" between protein, carbohydrates, and fat, but an investigation now in progress has convinced the writer that in the great variations from the mineral salt mixture supplied by whole milk which are found in some of the preparations sold as infant foods may be found an adequate reason for the physiological insufficiency.

In the second class are the malted and farinaceous foods. These are sold to be used with fresh milk. There is nothing to be said against their use except their price, which is exorbitant, and that there is always an element of fraud in the use of the word "food" in the advertising matter which sells the article or which guides the mother in their use. The uninformed are led to believe that the "food" possesses some special physiological properties which make it and not the milk with which it is fed the more important constituent of the child's diet. In reality it is now a matter of common knowledge among dietitians that these "foods" have no advantage over barley, oatmeal, or the simpler carbohydrates, which can be had at ordinary food prices.

It should be emphasized repeatedly in all courses in dietetics that of all foods having special properties in inducing growth and health in the young, nothing derived from the animal or vegetable kingdoms can compare with fresh, clean milk. Milk is a complete food and needs no supplements. The writer kept a pig fresh from its mother on fat-free milk alone during seventeen months. During this period she developed in a perfectly normal manner, reaching a weight of 406 pounds at the age of thirteen months, at which time she gave birth to ten normally developed pigs and, continuing on the milk ration, suckled them to the normal weaning time. Experienced animal husbandmen predicted that she would suffer malnutrition, but all who saw her when full-grown pronounced her normal in every respect.

It is a mistake to assume that some other ingredient is necessary or desirable in the early months of life.

The thing of greatest importance is that the milk be clean. We have become so accustomed to milk which will keep but a few hours without souring, even in a refrigerator, that our standard of cleanliness in milk for infants is too low. A short time ago a customer of the dairy barn of the University of Wisconsin started on a trip to the Pacific coast with a young infant. Fearing to give the child milk of uncertain quality secured en route the father brought to the dairy barn a bottle sterilized by heat and it was filled by milking directly into it from a clean udder. No extraordinary precautions were taken, but the infant was fed on this milk during the entire trip which lasted three days, and some of the milk left over was reported to have been still sweet three days later. During the Paris Exposition a sample of milk collected with great care to avoid contamination was taken from the Illinois Experiment Station to Paris without heating, and was exhibited there and brought back in a fresh condition. It is not possible, ordinarily, to obtain milk of this character for infant feeding, but it is easily possible, if the public will demand it, to secure milk which will keep perfectly in an ordinary refrigerator at least twice as long as do the better grades of market milks at present. If this were realized a very great deal of the suffering and mortality among young children would be avoided.

It is astonishing to see the lack of common sense sometimes displayed by parents and even physicians in deciding how to feed an infant that is not growing, and with which something is evidently wrong. A chemist is employed to analyse the milk, and the departure of his figures from the normal values for any constituent is made the reason or excuse for changing to artificial feeding. The writer has had frequent requests for such analyses but has refused for several years to make them. Instead the following advice is given free: Spend the money which the analysis would cost for an accurate scale with which to weigh the baby. Weigh it frequently and record the weights as taken. If it stops growing and manifests signs of distress apparently due to diet, weigh it before and after nursings to ascertain whether it is getting too little, too much, or a normal amount of food. In determining this consult the tables in some of the books written by reputable physicians for the guidance of mothers. If the child is getting an insufficient *quantity* it must be fed to supplement the breast feeding,

which should be continued. Feed it fresh, clean, fat-poor milk, certified if possible, diluted according to the age of the infant. Begin with it quite dilute and gradually give it stronger as the child shows that it can take it. If the child obtains from nursing the quantity of milk given in the statistical tables as normal for that age and is not growing or is in distress the milk is probably of poor quality, and again a change should be made to supplementary partial feeding.

If an infant is over eating, it should readily become evident to those who observe it closely. Regurgitation and vomiting appears, at first soon after feeding; later this is delayed and becomes a part of a general dyspeptic condition. These, with short intervals of restless sleep and periods of colic, should indicate the need of limiting the food intake and temporarily lengthening the intervals between feedings.

This may seem radical to many, but it is certainly more logical than to determine the method of procedure on a single analysis of a sample of milk. It is well known that various causes may lead to a deficiency of the milk supply and also to an abnormal composition. The mental state of the mother at times when it is desirable to obtain a sample for the chemist are usually just such as would lead to the collection of an abnormal sample, and accordingly the remedial measures adopted from the chemist's findings may be based on wrong assumptions.

A word should also be said here regarding the diet during the much dreaded second summer. This is the time when the vigilance of the careful mother begins to relax, and it is to errors in the diet that most of the disorders of this period are traceable. Safety should still be the watchword. While considerable variety may be given, everything should be selected with a view to protecting the still relatively feeble digestive tract from infection. The same care as to the cleanliness of the milk supply and as to proper refrigeration should be given as during the child's earlier life. Cereals, bread, broths, and a few well cooked vegetables are all that is necessary to supplement the regular milk diet. No food other than milk yields sufficient bone building materials, and milk should therefore hold a prominent place in the diet of the child all through the growing period. If the child refuses to drink milk, it should be given foods prepared with milk. Under no circumstances permit a child to discontinue the use of milk during the growing period. The unfortunate experiences of this period are usually traceable to lack of vigilance in the care of the milk, or to feeding unsafe foods such as partly ripe fruits, uncooked berries, salads, etc.

Lastly, I would call your attention to the fact that the powers of growth dwindle rapidly and steadily from birth onward, and any cessation of growth, even for a short time, should be regarded with concern. The earlier in life the more precious is each day. Parents should make it a part of their duty to ascertain by careful weighings at proper intervals that growth is going on, and at a normal rate. If a cessation occur, remedial measures should be promptly taken to prevent any long break in the normal course of growth.

THE NUTRITIVE VALUE OF SEAWEEDS.¹

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In many parts of the world the seaweed industry is a very important one. Tons of algae are gathered annually in China, Japan, and the East Indies, in the Hawaiian Islands, in France, Ireland, Scotland, and other European countries. While utilized to some extent in the arts, their chief significance lies in their extensive use as food for man. In Japan alone, according to the published reports of the Bureau of Fisheries, the value of the prepared seaweeds exceeds \$2,000,000 annually, and it has been suggested that in the United States and the Hawaiian Islands, which are equally rich in marine plants, much greater commercial benefit might be derived from them than is the case at present if it could be clearly shown that they are really valuable as foodstuffs.

Until quite recently, little was known either in regard to their chemical composition or their food value, but methods of preparing them for the table are very old. In Japan, algae in general are called "nori," and this term appears in the names of products derived from them as funori, amanori, and the like. Among the most important seaweed preparations are kanten, kombu, amanori, and wakame.

Kanten is made from algae of the genus *Gelidium*, the various species of which yield a mass of jelly on boiling. This is strained off, dried, and sold in sticks or bars of different styles. It is used for food largely in the form of jellies or as thickening in soups and sauces, and the consumption is by no means limited to Japan. In the scientific world it is known as agar-agar, serving as a familiar culture medium in the bacteriological laboratory.

¹ Presented at the Washington Meeting of the American Home Economics Association, December, 1911. For full details of the experimental work see the author's paper, Nutrition Investigation on the Carbohydrates of Lichens, Algae, and Related Substances, *Trans. Conn. Acad. Arts and Sciences*, 16 (1911), pp. 247-382.

Food preparations from kelps are known as kombu, made in Japan for more than two centuries. There are a dozen different forms, each with its own particular flavor and use. Some are eaten dry, others soaked in water, sugared, cooked with meat, or added to soups, sauces, and other dishes; in fact, kombu is one of the standard foods of the country.

Amanori is made from red laver, for many years cultivated for the purpose. Small quantities are eaten fresh, but the bulk of the product is sun dried in thin sheets after sorting and chopping. Before eating it is made crisp by heating, and then crushed between the hands and dropped into sauces, soups, or broths to impart flavor. At railway stations sheets of amanori spread with boiled rice and covered with meat or fish, rolled and cut into transverse slices, take the place of the American sandwich.

In Hawaii, edible algae are called "limu." Of these over seventy distinct species are used for food, more than half of these being very commonly so employed. No Hawaiian feast is ever considered complete without these "nymphs of the sea" which are to the nation the synonym for all that is delicious. They are eaten in many ways; uncooked, as a relish with meats or fish; cooked, in soups or roasted with meats and fish. Among the most popular are limu eleele, limu kohu, limu lipoa, limu huna, limu akiaki, and limu manaua.

Limu eleele is a general favorite, being eaten with almost everything, generally uncooked, and so taking the place of our salads in the menu. It is sometimes dropped into hot gravy, broth, or meat stew just before serving.

Limu kohu is sold in the form of globular masses about the size of a baseball. In preparation for the market it is slightly fermented and acquires a somewhat sour taste. It is pounded, mixed with salt, and eaten with fresh fish.

Limu lipoa is popular on account of its spicy flavor and is frequently used as a condiment, taking the place of sage and pepper in the Hawaiian dietary. Limu huna is especially prized for boiling with squid or octopus. Limu manaua and limu akiaki yield large amounts of a clear mucilaginous extract which forms a fine jelly on cooling. The same is true of limu kohu and limu huna. These extracts are considered especially fine for thickening broths.

Many of the seaweeds used in Japan and Hawaii occur also along the coast of the United States and Europe and are to some extent used as food, but the only ones of enough importance to mention are

Irish moss, purple laver, and dulse. Irish moss or carragheen, the "tsunomata" of Japan, has long been used as a food stuff in Ireland. In this country it is found on the Atlantic coast from North Carolina to Maine, being especially abundant north of Cape Cod. It is used in cookery chiefly for making blancmange. Red laver, the source of Japanese amanori, is found in abundance on the rocky shores of America and Europe generally, but is not used in this country save sparingly by the Chinese, who usually import it directly from China, and by some of the Indians of our northwest coast. In Ireland it is known as "sloak" and is eaten as a vegetable, boiled and seasoned with butter, pepper, and vinegar, or combined with leeks and onions. Dulse is found abundantly on our own rocky coasts, especially in New England, and also on the rough shores of Great Britain. In this country it is usually sun dried with the salt water adhering and eaten as a relish. In Scotland it has long played a more prominent part, "a dish of dulse boiled in milk" being styled the best of all vegetables.

It has seemed worth while to investigate the nutritive properties of materials so widely used as food, not only because they already enter into the dietary of many people, but also because if their nutritive value were as great as is commonly believed, a wider use of such comparatively cheap materials would be economically advantageous, and also because they are frequently recommended as nutrients in disease, where the character of the diet assumes very great importance.

Published analyses show that the fresh algae contain about 80 per cent water, 3 per cent protein, 14 per cent carbohydrate and 4 per cent ash, hence they would seem to compare favorably with other green vegetables as foodstuffs. It is not safe, however, to assume that substances reported as protein, fats, and carbohydrate in a proximate analysis are necessarily capable of utilization by the animal organism. There is, on the one hand, a possibility that the nutrients may be unavailable on account of physical conditions which interfere with digestion and assimilation, cellulose structures, as is well known, preventing complete absorption of foodstuffs in many vegetable products; and on the other hand, the usual methods of analysis do not distinguish between true proteins and nitrogenous bodies in general, nor between fats and other ether-soluble substances and do not discriminate among carbohydrates except in the case of the more resistant cellulose. It is well known that the nitrogenous material of mushrooms, once so highly regarded that this plant was called the "vegetable beefsteak,"

is so small in amount and of such a nature that it is of practically no value to the body, and it has been shown that carbohydrates which seemed theoretically most easy of digestion, being perfectly soluble and easily hydrolyzed to dextrose or levulose, are not converted to sugar by the enzymes in the body, and unless hydrolyzed by the acid of the gastric juice, seem to have little chance of contributing to the nourishment of the body.

In determining the nutritive value of any product it is therefore necessary to apply, besides mere chemical analysis other criteria, such as the action of the digestive fluids, the action of bacteria, not only by experiments outside the body but by actually feeding the substances in question, and also by observing their fate when introduced directly into the blood stream without the intervention of the alimentary tract. Such investigations the author has carried out with a number of species of marine algae. Eight of these were obtained from Hawaii through the kindness of Miss Minnie Reed of the Kahahameha Manual Training School in Honolulu, and two (dulse and Irish moss) in our eastern markets. With the exception of three "limus" (eleele, pahapaha, and lipoa) all yielded considerable amounts of soluble carbohydrates, sometimes only 4 or 5 per cent of insoluble material remaining, as for instance in the case of Irish moss, limu manaua, and limu huna.

The carbohydrates of these algae are chiefly pentosans and galactans i.e., hemicelluloses yielding respectively pentose and galactose on hydrolysis. As a class, the hemicelluloses are distinguished from cellulose by hydrolysis on boiling with dilute mineral acid, and from other polysaccharids by their resistance to ordinary diastatic enzymes. They are frequently complex in character, being found in loose chemical combinations, so that the terms pentosan and galactan as used here refer to the chief component rather than to an absolutely pure substance. All the gelatinizing extracts (those from Irish moss, limu huna, limu manaua, limu akiaki, limu uualoli, and limu kohu), consist principally of galactans; from dulse a soluble pentosan was derived, which was not gelatinous; and the three limus which did not yield water extracts consisted principally of pentosans. For experimental purposes these were simply ground as finely as possible.

Artificial digestion experiments with human saliva, malt diastase, dog's pancreatic juice, pig's pancreatic extract, and extracts of dog's intestines and pig's stomach showed that these enzymes had no hydrolyzing effect upon any of these substances. With artificial gastric juice

and "taka" diastase, long incubation resulted in slight hydrolysis in two instances, but controls showed that in the case of gastric juice the action was attributable to the acid present.

When pure, dilute solutions of the galactans and pentosans were subjected to the action of various bacteria commonly occurring in the alimentary tract, to mixtures of soil and fecal bacteria, and of powerful putrefactive anaerobes, for periods of three days under various favorable conditions, there was neither sugar production nor loss of carbohydrate material. Irish moss remained unchanged when the incubation was continued for four weeks, but the pentosan of dulse disappeared to some extent in the cultures of soil and fecal anaerobes and aerobes and sugar was formed in cultures of two putrefactive anaerobes. It is evident that these hemicelluloses are as resistant to the action of bacteria as of digestive enzymes. It has been suggested that limu manaua, which yields a jelly firm at body temperature, might be used in bacteriological laboratories as a substitute for agar-agar, on account of this high resistancy.

When introduced into the alimentary tract of dogs and human subjects as part of a cellulose-free diet, the pentosan of dulse disappeared almost completely in the man and only 25 per cent was recovered in the feces in the case of dogs. Of the seaweeds fed in toto (finely ground and thoroughly cooked to facilitate digestion) the results were similar, but the coefficient of digestibility was lower, averaging 50 per cent owing doubtless to mechanical conditions and the greater resistance of the insoluble pentosans. The average coefficient of digestibility of the galactans was on the contrary only 26 per cent. Irish moss was excreted quantitatively in the case of human subjects, and even limu akiaki, which is hydrolyzed at body temperature by 0.2 per cent hydrochloric acid showed a coefficient of digestibility of only 60 per cent.

Comparison of the feeding experiments with the bacteriological investigations shows that the carbohydrates most readily attacked by bacteria disappear most completely from the digestive tract, and since the alimentary enzymes tried had no effect, it seems reasonable to consider this apparent digestibility in any given instance as due to the influence of the micro-organisms of the intestinal canal.

There remains, however, the possibility of these substances being absorbed unaltered, and transformed into available compounds within the body proper. To test this point, parenteral injections both subcutaneous and intraperitoneal were made in small dogs, and the urine examined both before and after the operation. Solutions of the dulse

and Irish moss preparations were speedily and apparently completely recovered. The results were therefore in harmony with the accepted fact that the polysaccharids must be converted into monosaccharids before they can enter into the processes of intermediary metabolism.

From such experiments it becomes evident that the solubility of a carbohydrate, or its gelatinizing power, is no guarantee of its digestibility or nutritive value. Aside from the possible benefit which may be derived from the high ash content, and from the fact that the undigested carbohydrates may have a useful function in counteracting constipation, owing to their power of retaining moisture or to their stimulating effect upon the intestinal secretions, it is impossible to attribute to them any important dietetic properties. They are to be regarded as food accessories rather than true nutrients.

POSSIBILITY OF KAFFIR CORN FOR HUMAN FOOD.¹

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Kaffir corn, as well as other grain sorghums, has been commonly used as human food in Africa, India, and some parts of Asia; but practically the only application of this sort that has been made of it in this country is of the meal, ground locally and usually in the rural districts, and used in making batter cakes and similar articles.

There seemed to be no reason why, if properly milled, Kaffir products should not be utilized more generally. It was for the purpose of discovering the possibilities in this direction that some experimental work was done at the Kansas State Agricultural College last spring. These experiments were conducted on such a small scale that no definite conclusions as to the details of the cookery of Kaffir corn could be reached, but they proved beyond a doubt that it has great possibilities.

Analysis shows that the meal is very similar to corn meal but somewhat deficient in protein. It makes a good substitute for corn meal and can be used to replace it in nearly every case. When used alone it requires considerable liquid to mix it, lacks sufficient gluten to hold together, and is rather harsh and somewhat tasteless; but when mixed with wheat flour which supplies the gluten the results are

¹ Presented at the Washington Meeting of the American Home Economics Association, December, 1911.

very successful. In most cases a mixture of two parts Kaffir to one part of wheat flour is good, and in practically all cases a mixture of half and half is successful.

Black hull Kaffir flour, white durra flour, black hull Kaffir meal, and white durra meal were used in the experiments. Practically the only difference between the black hull Kaffir products and the white durra products as shown by the results was the darker color of the black hull variety which made the article less attractive to the eye. In case other coloring was added as molasses, egg yolks, etc., practically no difference was noticed.

Recipes for Johnny cake, muffins, griddle cakes, Boston brown bread, and cakes were worked out. The mush was not very palatable as a cereal but was good when fried. As the supply of flour was limited no extensive experiments could be made with it. Recipes calling for wheat flour were used successfully without any change with the exception that the doughs—biscuits, cookies, etc.—required more Kaffir flour than they would have of wheat flour.

Kaffir corn has a characteristic flavor which was very noticeable in some of the results, in some cases making the article more appetizing than otherwise. It seems rather out of place in biscuit but gives an excellent flavor to muffins and cup cake, and if used would give variety of flavor to the diet. In brown bread, gingerbread, sponge cake, molasses cookies, and similar recipes, the flavor of the Kaffir corn is only slightly noticeable and in some cases not at all.

Because of the peculiar adaptability of Kaffir corn to the dry farming region any further use of it or of its products is of especial interest and importance.

THE POSSIBILITIES OF A HOME-MAKER'S COURSE.¹

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The expression "home-maker's course" may mean a high school course in which the program is so arranged as to offer a large number of subjects bearing especially on the home, and giving comparatively few so-called cultural subjects—just the opposite, in fact, of the usual high school course. The Minnesota Agricultural High School affords an example of such a course; and a very large percentage of its girl graduates return to their homes and use there their school-gained knowledge. On the other hand, the expression may mean a college course in which all the subjects offered are equal, in a scientific, cultural way, to those of other college courses, yet especially useful to the home-guard, the citizen-former, the chief feeder, clothier, and trainer of human kind; such a course, in short, as prepares for teaching in a special profession and at the same time for meeting the responsibilities and solving the problems usually confronted in life.

If each daughter in the land could have the benefit of one or more such courses, but few generations would pass before every woman would thoroughly appreciate the importance and magnitude of the home-maker's profession and be anxious to solve successfully all its problems. Educators can aid much in giving young people a right view of life, as the progress in agricultural pursuits plainly shows.

An intelligent stock-raiser of the present time employs to feed and care for his stock such men as are capable of producing from good specimens of young animals the best adults of their kind. Hasten the day when the housewife can secure equally efficient help to aid in caring for the family, which collectively represents the most important of all animals.

In order to bring about such a condition, education for home life must be made universal. Men's vocations are varied, hence boys may

¹ Presented at the Washington Meeting of the American Home Economics Association, December, 1911.

need multiple courses, but every girl should finish a well-planned home-maker's course before any other is offered. Such a course fits its graduates for the general life of a home-maker; and, as most women will choose home-making as their ultimate and lifelong work, all need such a course. Young women wishing to enter special professions would readily find a suitable college course, and little time need be lost on account of having pursued the special home-maker's high school course, rather than the usual general one.

In the present plan of education, very few subjects tending to enlighten the student on specifically home duties are offered, and these few are not available to all. Furthermore, the subjects now offered occupy too little time to render every girl proficient in them. All mothers should be aroused to a full sense of their duty in this matter of educating the daughters, and of so arranging school courses as to magnify the daily duties of life. Closely uniting the instruction given in the home and at the school will aid in promoting this just and good cause. Children must have homes; meals must be prepared, clothing made, and all the varied activities of life carried on. Such can be taught in an educational way in the schools, but the lessons learned at school should be given practical application by the children in their homes.

Other professions do not send out unpracticed workers; why should this profession, the most important of all? Young medical students are not permitted to practice without experience, and frequently each is required to act as "interne" at some hospital for at least one year. Why should young home-makers undertake their work with only a general education and no practice? The mothers are far more responsible for the health of families than are the doctors.

The idea that the schools are wholly responsible for the education of our girls must be eradicated. Schools cannot do all this work, as experience has shown. They have earnestly tried to solve the problem, by including home-making subjects in their curricula and striving to render them popular. In some cases cooking and sewing are the only special subjects offered, and as each of these can be given only once a week, little advance is made in elevating the standards of home work. Such courses should be comprehensive and thorough including many allied subjects and elucidating underlying sciences. Physiology, physics, chemistry, bacteriology, and many other subjects have a decided bearing on home work, and should be so taught as to show the application of their principles. It is a mistake to suppose that the domestic science teachers and the mothers can alone produce the most successful home-makers. Every subject which bears on the home

must be taught in this relation, and made to give both practical and cultural value. Both patrons and pupils are desirous of more and better help from the public schools, as the following sample letters attest:

(1) I took all the domestic science that was offered in the school which I attended, but I find my knowledge inadequate for a housekeeper.—*Young Bride*.

(2) I am very much interested in domestic science and home-making work in the public schools. Quite too little of this important subject is taught. I recognize the difficulty and slowness which will necessarily attend the introduction of this line of study in the country schools. There seems to be no reason, however, why a greater amount of time should not be given to it in the city schools. The subject should not only be placed in the public schools before the pupils have passed into the high school, but should be continued throughout the high school course. From the time the pupil enters the seventh grade to final graduation, the majority of both boys and girls have a great desire to 'make something' which may serve a useful purpose. An incident in our own family shows the importance of carrying this work through the entire school period. The pupil became very much interested in cooking while in the seventh and eighth grades and although the work was given but once a week became fairly proficient, taking considerable interest in the practical part of carrying on the household. With her entrance to the high school, where she took up subjects not closely related to home problems, interest in the practical problems of the home ceased. In short, the practical side of home-making had few attractions when it was not linked with the educational features. Others have told me of similar instances in their families. These are lamentable conditions; and the subject seems of so much importance that I take the liberty of writing you in regard to it, hoping that you may exert your influence in the educational field in an effort to prevent such elimination of essential vocational studies, at a time when they are so much needed, and I believe wanted.—*A Citizen*.

There are many such appeals, and those interested in the public welfare should do all in their power to better conditions now, while the work is popular and while men of influence are ready to aid in furthering this cause. Some cities offer domestic science in the high school as an optional to Latin. Why is not a similar arrangement possible in all such schools? Doubtless this would increase the expense of school maintenance somewhat; but this matters little, if girls are thereby imbued with a love for home-making and are rendered more capable of performing their duties in life. It is generally easier to make a new garment than to remodel an old one. So it is with school courses; and, in the consolidated rural schools now just making their first appearance, there is opportunity for organizing in such a way as to suit new conditions and test suggested plans. All work on home subjects should be so arranged as to extend through at least three years; cooking and sewing should each occur at least twice a

week. All practice-work should be such as to insure popularity with the patrons from the beginning. Sewing, which forms wearable garments, and cooking, which prepares food from materials in general use in any special community, would, no doubt, meet this requirement and the course should include all subjects belonging to hygiene.

All sciences should be taught in an applied way, and all subjects allied to the home should be given a place on the program. Such a course should be thorough, scientific, and useful, hence popular with the people and lasting in its benefits.

These new schools should be primarily for the rural districts, just as the city high schools are primarily for the city districts. Teachers in these schools should understand not only general rural but also special local conditions. The farmer regards the agricultural colleges and high schools as his institutions; hence let all such institutions of learning make special efforts to gather together young women from the rural districts, and educate them for teachers in those consolidated schools, which already exist, and those which are soon to follow. Minnesota's last legislature provided for twenty-five such schools in this state in addition to the ten already existing.

These institutions should prepare not only teachers for cooking and sewing, but for the allied subjects and the sciences underlying home-making; young women from the country, especially, should find training here. Permanent success demands that home-making work be put on a scientific basis, as well as that it be popularized. Rural communities can be best led by their own people. As good raw material for teachers may be found in those communities as anywhere and the agricultural high schools and colleges can, by careful work in properly educating girls in the one, for home-makers, and in the other, for teachers, evolve a new, needed, and appreciated home-maker's course.

HOME ECONOMICS IN THE AGRICULTURAL COLLEGE.¹

JESSIE M. HOOVER.

Professor of Home Economics, North Dakota Agricultural College.

While Home Economics did not have its origin in the agricultural college, these institutions have been quick to embrace this very neces-

¹ Presented at the Washington Meeting of the American Home Economics Association, December, 1911.

sary part of a curriculum which is both practical and scientific. In the new states of the west Home Economics is not only a live problem for the native American, but also a problem for the foreigner who comes to our fertile farm lands with little money or education but with a strong body, a willing hand, and a purpose to become a true and loyal citizen, and anxious to learn not only the methods of farming presented by the agricultural college, but also the customs of the homes. It is a noticeable fact that as our honest, hard-working Scandinavian population gains wealth, various members of the family or the friends are brought to America, and very often indeed as a first step the newcomer is taken to a shop and fitted out with clothing of our present day fashion. It is evident, therefore, that if the agricultural college of the West is to meet the needs of the community which it serves it cannot hope to do so by instruction of collegiate rank alone.

The agricultural college department of Home Economics must be practical, else instead of gaining ground its purpose is defeated and the student is made to feel that hand work is to be despised as unworthy of the scientifically trained person. Neither must the splendid facilities for scientific instruction be overlooked, for through federal and other aid the experiment station has become a valuable ally of the Home Economics work. Then too, almost all agricultural colleges offer excellent science courses in their departments of botany, zoölogy, physiology, bacteriology, chemistry, and physics. I would not advocate weakening these science courses, but rather adding a large amount of the practical as illustrative material. Most of the sciences are fast becoming adapted to the needs of the people; physics seems to be the last to fall in line, but the old time laboratory methods are now being improved by the addition of illustrations which imply the application of physical laws to the problems of daily housekeeping.

But if we provide only collegiate work for our students, what shall be done for the girls on the frontier who have no opportunities to do the required preparatory work, and from lack of preparatory schools may never become prepared to enter the college? It is evident that in the sparsely settled states the agricultural college must in some way furnish high school facilities that will prepare both the rural teacher and the average student for efficiency in life, and in some cases for college entrance as well. Not only is a high school invaluable for the student who registers in its courses, but it may furnish an opportunity for the senior in college to get methods and practice in teaching, for we must depend on the agricultural college to train many of the

teachers who are to be in sympathy and harmony with agriculture and farm people and their homes.

Another problem of the agricultural college is that from the very nature of the case the farm crops have not been harvested when the college year begins in September, and again the seeding must be done in the spring time long before commencement in June. This means that many a girl from the farm is deprived of both the beginning and the end of the school course. As the other students have had at least six weeks' start in the fall, the rural student feels that she is at a great disadvantage. This is sure to result in discouragement, and eventually she may give up the fight. Therefore, if the agricultural college is to educate the farmers' children there is but one thing for it to do and that is to arrange a course which will meet the time requirements of the student from the farm. Hence most of the agricultural colleges have introduced the so-called "short course," which in most institutions is a three months' course. These courses are well attended and at a few of the colleges it has been concluded that if a farmer's daughter could attend three months she might also attend five or six months, and I know of no college in which the longer term has been tried that it has not been a great success. Indeed, in many states it has practically supplanted the old three months' course. Not only do the girls come for the first year, but they are ambitious to finish a three year course. The great problem of this course is to keep from running it into a trade school, so eager are these young people to learn to cook and sew and perform other household work by the best methods. Thus the problem is, first, to create interest in the study of Home Economics from its practical view-point and then to continue this interest further into the allied sciences. How often these students have said, "I really had no idea that I could learn anything about bread and butter and meat and potatoes, but it is really wonderful to study about these foods." These young women represent intelligent and happy home makers and we can never have too many of them.

Home Economics, however, cannot confine its help to those who come to the college, for if it is to meet the requirements of the great agricultural class we must recognize that those who must remain at home are just as worthy and pay just as much to support the institution, and to neglect them will be to lose an opportunity to aid the majority.

One of the principal avenues of reaching them is through the rural schools, by contests, both in the growing of foodstuffs and the cookery of food. Here the agricultural college may coöperate with the

county superintendent. He in turn endeavors to interest his teachers, and thus the district and later the whole county may have these contests. In Home Economics these contests may include breadmaking, canning, and sewing. After the contests are over the successful contestants of each county may become eligible to attend the Boys' and Girls' Institute at the agricultural college. In North Dakota the Boys' and Girls' Institute was first held about a year ago and nearly ninety children were enrolled. The railroads gave them free transportation and the college gave free instruction. Who can tell what that two weeks meant to those girls as they came in their little print dresses to learn about foods and sewing and home hygiene? The county superintendents or their deputies acted as escorts from each county and they attended the classes with the children and were also benefitted. I shall never forget one little girl who had driven fifty miles to reach the nearest railroad station, and I am sure she will never forget that institute and the inspiration received.

The farmers' institute and the extension department of the agricultural college are so closely allied that it seems difficult to separate them, and many times these two institutions work in conjunction. Some one has said that the weakest point in farmers' institute work is that although the interest is aroused, it comes but once a year and the listeners often fail to follow up the work. It is too much like a religious revival service in which enthusiasm is developed for the time, but is too apt to wane. Hence the importance of having the extension department follow immediately with the movable school, and this is a method which is applied not only to the agricultural work but also to that in Home Economics. In many localities the women's institutes are held separately from the men's institutes, in other localities they are held together, the number in attendance being the determining factor. Following the state speakers at the institute, the college extension force begins a five or ten day session with short courses in domestic science and domestic art for the women and girls, and these movable schools are beginning to form a most valuable part of the extension work. The lessons are practical, and the woman who has charge must be one who loves her work and knows her people. She should be sympathetic and deeply and sincerely interested in the citizens of her state. In North Dakota one of our college department women usually goes, thus effecting a mutual acquaintance and helpfulness.

A farmers' institute annual is published by almost every state, and as a generous portion of it is given to the discussion of Home Eco-

nomics topics, not only does the farmer receive helpful information but his wife as well. Home Economics subjects which seem especially interesting to the rural communities are the canning and preserving of fruits, vegetables, and meats, pickling, bread making, leavening agents, laundry and cleaning suggestions, methods and principles of cookery, hygiene, home nursing, sanitation, and similar practical subjects.

The farmer's club is a growing part of the social and intellectual life of the rural community. The agricultural college gladly coöperates with these clubs. On these occasions the farmers with their families usually gather at a central hall where they have lunch together at noon and then hold meetings in the afternoon. As the women and children are present, they receive their full share of the time on the program. It has been my experience that no subject so much appeals to these clubs as food values and balanced rations, and men and women are alike interested.

At the farmers' clubs the local talent exchange ideas as to improved methods of work. At one place I visited there was a splendid-looking display of canned vegetables, and the lady who had done the canning said proudly to her audience, "I did it with this," holding up a small package of "canning powder." It is on these occasions that the scientifically trained college woman must use great tact, and it is here that she feels as never before that it is one thing for the pure food laws to require truthful labels on foodstuffs and drugs, but quite another thing for the consumer to appreciate the full meaning of the labels. It is here that the agricultural college and experiment station comes to the rescue of the consumer on the farm.

Correspondence courses also come within the field of these state institutions, for it is their duty to serve the whole people and to do it at a minimum of expense. Women are becoming greatly interested in this part of the Home Economics work.

The summer school and teachers' institute in the co-educational agricultural college is not considered complete without instruction in Home Economics. I have been interested to note that 75 per cent of the teachers enrolled in North Dakota have elected this work even though they were not required to take it to get their certificates.

Perhaps one of the most interesting features of the Home Economics instruction outside of the college walls is the work done on the special trains. Last year this work was undertaken in a large number of states. A full discussion of the methods followed cannot be attempted here, but suffice it to say that the interest is intense and no agri-

cultural college should allow an opportunity to pass unheeded to send a Home Economics car on the special train.

In the *World's Work* for November are illustrations of some of these cars, among them the North Dakota Home Economics car. Among the articles exhibited were dress patterns, a library, exhibits showing food composition, household conveniences, lighting, heating, and plumbing plants, all in miniature, working models showing how the farm home can be made modern, a sanitary exhibit showing plates of bacteria grown from a drop of well water, and a graphic illustration of the necessity of ventilation. Who shall say how much this means to those far away from the advantages of the city?

The work in Home Economics is also extended to the state and county fairs, where it should be placed in the agricultural building to insure that those for whom it is especially intended may have the opportunity to see it. The girls' camps held in connection with the extension departments in a few of the states, the work in women's clubs, Chatauquas, etc., all are likewise in the field of this department.

The last feature of the work which I shall mention is presented to farm women through the avenue of farm journals and this is one of the principal methods of teaching Home Economics. The knowledge that the article came from the agricultural college means much to the country woman for she feels that it is not the production of a theorist but of a practical institution whose chief aim is the efficient management of the methods of work in the farm home.

HOME ECONOMICS EXTENSION WORK IN KANSAS.¹

MARY PIERCE VAN ZILE.

Kansas State Agricultural College.

President Waters of the Kansas State Agricultural College in his recent inaugural address touched the keynote of public sentiment when he said, "While it is of paramount importance that the college gives thoroughly sound instruction to the young men and young women in residence, it is equally true that its activities must not end there. More and more must the college be carried to the people since but a small proportion of those who should avail themselves of its advantages can leave home."

¹ Presented at the Washington Meeting of the American Home Economics Association, December, 1911.

In accordance with this idea, the extension work at the Kansas College has been emphasized from the very beginning of President Waters' administration. Previous to this time Home Economics extension work had been done by the regular teachers of the department. This necessitated a division of energy and of time, for in every case the teacher was called from her regular class duty when obliged to be in attendance at some meeting—oftentimes in a far distant part of the state. Much was accomplished, however, and the extension workers of today are privileged to garner the harvest whose seed was planted by some faithful worker of those earlier days. No story of the extension work of Home Economics in Kansas would be complete without references to what Mrs. Kedzie, Mrs. Calvin and others did in laying the foundations.

Recognizing the fact that organization is the basis of success, whatever be the undertaking, the Kansas College has developed a well organized system of extension work, which is in every detail the outgrowth of a careful study of all factors concerned. The home extension work is but a single sub-division of the larger scheme which has for its aim the reaching of the masses of the people and the development of all their interests. The legislature of 1911 made a liberal appropriation for the extension of industrial education in Kansas. At this time a young woman was selected and to her was given the responsibility for the extension work in Home Economics throughout the entire state. From time to time the Home Economics staff has been increased, until at present there are four women giving their full time to this work. It is still necessary at times for the teachers of the college Home Economics department to respond to a call to help carry on some phase of the extension work, but in so far as is possible the work is done by the regularly appointed instructors. It is carried on in the following definite ways and is supported by the fund that is appropriated by the legislature for college extension work.

Women's Auxiliary to Farmers' Institutes.—These organizations were the outgrowth of the frequently expressed wish of the women and girls in attendance at the regular farmers' institute gatherings for help in meeting their specific problems. The membership of the organization is made up for the most part of the farmers' wives and daughters, although any interested woman may become a member. The plan of organization is simple, and the meetings are held regularly once a month throughout the year. At these meetings the subjects of interest pertaining to home life are studied, with the help of sug-

gested programs with a carefully prepared list of references, and such material as may be available in bulletin form as sent from the college office. A report of each meeting is requested and inquiries regarding puzzling problems are encouraged. The Auxiliary holds its sectional meeting in connection with the annual farmers' institute meeting at which time a speaker is always present from the college department to give help and inspiration. The number of auxiliaries at the present time is 22, with a total membership of 585.

The Girls' Home Economics Club.—These clubs, now such an important phase of the extension work, were the outgrowth of contests in cooking and sewing. These contests were made possible through the coöperation of the county superintendents of schools who enlisted the girls' interest and supervised their work. The contests are governed by regulations formulated by the college department, the results are exhibited at the farmers' institute meetings, and the judges are usually college extension workers. This field of work proved to be of value, but very soon came the request for more assistance than the contests provided for. The Girls' Home Economics Clubs were formed to meet this demand. These clubs are designed to be substitutes for a Home Economics course in the public schools, especially in the rural districts until such work may become a part of the regular school work. The membership includes two groups of girls—the regular club being formed of girls from fifteen to twenty years of age, and the junior club of girls from ten to fourteen years. Any group of girls within the ages named, who will meet the requirements, are supplied with printed leaflet lessons by the college department. The conditions are that the organization must have a regular time and place of meeting; the club must be in charge of some responsible person; and the club must send to the college department a weekly report of all work done. The plan of work is substantially as follows: As soon as organization is complete, the names enrolled are sent to the college office, and printed leaflets are sent to each leader for the use of members. The lessons are worked out in some improvised laboratory, in the leader's kitchen, or in the homes of the individual members. At the weekly meeting of the club, a record of the results is made, showing for each member the number of trials, successes, and failures, together with any remarks or questions. These records are forwarded to the college department where they are carefully read. Corrections are made and the papers returned with the leaflets for the next lesson. At the present time, there are 64 of these clubs with a membership of 948.

Movable Schools.—One of the most popular of the different lines of extension work is the movable Home Economics schools. Any community in the state that can secure a class of twenty-four young women who will agree to pay a fee of \$1.00 each to be used in meeting the expense of hall, materials, and equipment, may avail themselves of the opportunities of the school. The local communities must secure a suitable room in which the school may be held and must assume responsibility for its improvised equipment according to suggestions sent out by the college department. The college sends two instructors who for one week conduct daily lessons in both cooking and sewing. During the past year 31 of these schools have been held in the various small towns of Kansas.

Correspondence Courses.—Last year two correspondence courses in Home Economics were inaugurated, one in cooking and one in sewing. The texts for such work are supplied by the Home Economics department in the form of specially prepared bulletins. These are sent to the students together with a set of test questions. The answered questions are returned to the college for correction. At the present time there are 56 young women enrolled in these courses.

State Farmers' Institute.—In addition to these definite lines of work, the college extension department is endeavoring to be helpful in other ways. During the past year, two of the leading railroads of the state furnished a special train which carried agricultural experts into the territory traversed by these railroads. Members of the home extension force accompanied the party and were given an opportunity to speak to the women and girls at each stopping place of the train. It is estimated that 3,000 women of the most sparsely settled districts of the state were reached in this way and given the inspiration and hope that comes from the realization that their problems are the subject of special consideration by trained people. During the season of county fairs, the college department responds to frequent calls for exhibits of an educational character and for judges of award or for teachers to give demonstration lectures.

That the extension work has been worth while in the development of the Home Economics movement in Kansas is evidenced by the fact that today there are 439 rural schools and 124 high schools in the state teaching some phase of this work. May we not expect as the result a general uplift in the home life of the states and a realization of a more helpful and efficient civilization?

EXTENSION WORK IN MINNESOTA.¹

MARY L. BULL.

University of Minnesota.

Extension work has been in progress in Minnesota continuously, in some form, for several years. Before the organization of the present extension division, each division of the school and college did as much as possible of this outside work. At first the several instructors were called upon from time to time, each to give something in his or her particular line at farmers' and women's club meetings, in village high schools, etc. Later, outlined courses of four or five lectures and demonstrations, covering as many weeks, were carried on in connection with schools or clubs in different places.

Finally, two years ago, an extension division was established, with workers whose entire time was devoted to extension work.

The boys' and girls' industrial contest work, which has been carried on throughout the state since 1904, has created a great interest in subjects pertaining to farm life; and we believe it has been of value to the older members of the farm families, as well as to the boys and girls of the state. Such work is in most cases carried on under the direct supervision of the county superintendent of schools; he, in turn, working in general along lines outlined by the state for the boys' and girls' industrial contest work. Since 1906 a state contest has been held in the Twin Cities each fall after the county fairs are over, usually at the time of the meeting of the Minnesota Educational Association. The local or county contests are often held in connection with the county fairs.

At present many counties have a building which is devoted entirely to this industrial contest work. Some of these buildings are erected by the fair management, and others by individual subscription, or with money furnished by rural and village schools which they have in some way (as by school entertainments, socials, etc.) provided for that purpose. In some cases the buildings are very substantial, attractive structures, and in others they are less expensive, but in any case such a building gives the young people a feeling of ownership and added interest in their work.

Any boy or girl in the state is eligible to enter the contest, either

¹ An abstract of a paper presented at the Washington Meeting of the American Home Economics Association, December, 1911.

in agriculture, manual training, domestic science, or domestic art. The work in Home Economics is divided into three classes, A, B, and C. Class A includes children under thirteen years of age who are not in a graded or high school; class B all from thirteen to eighteen years of age who are not in a graded or high school; and class C any boy or girl not over eighteen who is in a graded or high school.

The winners of the first six prizes in each class in each county are allowed to compete in the state contest, where the winners of county prizes often make necessary careful scrutiny on the part of the judges. The fair associations, commercial clubs, local merchants, and other business men have been very liberal in their contributions for premiums, thus lending their aid in arousing interest and furthering the work. This year the state legislature appropriated \$2,000 per year for two years to be used as premium money in the state contest.

During 1910 and 1911 the extension workers have aided the agricultural high schools in conducting their short courses for young men and women. The demand is so great that the college and station people are sometimes urged by the school superintendents to help where there is an excess of places to be filled at one time. The work in domestic science deals with a study of foods, their use in the body, food and money value, etc., sanitation in the home, home economy, home hygiene, care of the sick in the home, home decoration, etc., with practical illustrations and demonstrations.

Special schools, such as corn schools, cooking schools, poultry schools, etc., are conducted in different sections of the state, provided certain requirements are fulfilled. These schools may be held under the auspices of any local organization or by an unorganized body provided some known reliable person guarantees a fulfillment of requirements as to number of students, place of meetings, and materials.

Demonstration or educational exhibit tents are sent to as many county fairs as is possible during the autumn. Three workers—two men and a woman—usually go with these exhibits and both explain the exhibits and give short talks on subjects pertaining to different phases of the work. They also judge all articles entered in the industrial contests.

And, last but by no means least, is the work done in the rural schools. A county superintendent may call upon the extension workers to visit his rural schools with him and give talks and demon-

strations in the schoolhouses during school hours, at some time previously arranged with the extension superintendent; in many instances these are both parents' and students' meetings. The domestic science worker takes up home subjects; different food materials, and the proper use of such materials; methods of preparation, combination, etc., illustrated by the Langworthy food charts and other convenient and useful helps. Where possible, some simple demonstration is given, showing why certain combinations of food are desirable. If one may judge by the attention given, such lessons are interesting even to the smaller children.

Simple talks on personal hygiene and its relation to health of body sanitation at home and at school, its relation to clean air, pure water, pure food and wholesome lives, are given. These are also subjects which appeal to both parents and students.

The warm lunch in rural schools—how it may be prepared and served, and its effect upon the comfort and well-being of the child—has been discussed, and seems in most cases to receive the approval of the parents. A number of teachers are trying out the plan as suggested in the bulletin issued by the extension division last fall, and with encouraging success in most cases. So simple a thing as corn meal gruel may not only serve as part of a noonday school lunch but also suggest a lesson in domestic science in schools and be discussed and used to good purpose at home. Any one wishing this bulletin (*Extension Bulletin 19*), which contains other suggestions on this line, may receive it by addressing the Extension Division, University Farm, St. Paul, Minn.

It is our hope and belief that some such work, carried on in the one-room rural school, may lead to a still greater interest in and study of all these most important subjects, subjects which have so close a relation to the healthy, physical, mental, and moral development of the race, and which, if thoroughly understood, would aid in placing home making on a level with other professions. The rural schools of Minnesota, though in many places small and poorly housed, have a large and important part in our plan for extension work.

THE DOMESTIC SCIENCE DEPARTMENT AS A SOCIAL CENTER OF THE SCHOOL.¹

BERTHA M. MILLER AND VIOLA M. BELL.

James Millikin University, Decatur, Illinois.

Both in aim and method, the present tendency in education may be said to be predominantly social. Contemporary educators, by continued emphasis on the socializing purposes, are bringing this fact clearly to the foreground. With the growth of this tendency there has developed an appreciation of the school as a social unit in the community. As a still further development there is now felt a distinct need of a social center within the school itself. The scope of this paper will be limited to a few suggestions upon this specific problem.

The school is a community within itself. It may be described as a social unit—a place where the mingling of the students with each other can be made of great value. The importance of this phase of school life is stressed by practically all writers on education today. To quote from several typical articles:

The primary aim of the public school is not to promote academic training, but to enable the pupil by means of a free, fair, and general social intercourse, under the leadership of friendly and large spirited men and women, to obtain practice in real life, to become socially and serviceably efficient.—*A. D. Call.*

Children from all classes and elements in life meet together on a common basis. . . . In reality they will get more than anything else, the results of the play of life upon life, as they mingle with teachers and schoolmates in the varying activities of the school.—*H. A. Hollister.*

The school is another form of social life It is emphatically a social institution The object is to socialize the youth and to fit him to take his place in society and to render the best service of which he is capable. *S. T. Dutton.*

This "social intercourse" may be gained not only through the subjects already included in the curriculum but also through the introduction of subjects of distinct social value. The former, however, are too vague to have any direct bearing upon social development and the latter are limited in their influence to the members of the classes. If this training is so essential, let the social life of the school be consciously developed and definitely organized; or as H. Woolston expresses it: "Under the control of the school there ought to be provided ample opportunity for purely social recreation. I would advocate, to be

¹ Presented at the Washington Meeting of the American Home Economics Association, December, 1911.

explicit, the introduction into the program of the school of regular social occasions at stated and reasonably frequent intervals."

The association of an individual with the members of his own school group gives a certain degree of confidence which may be lost when he comes in contact with another group. His social horizon therefore should be widened by bringing together as many groups as possible upon these social occasions. R. P. Halleck in discussing the social side of high school life says: "Varied ways of developing social activities must be devised." One of the easiest and most natural outlets for this life is through the domestic science department, as both subject matter and equipment are social factors. The use of the rooms and equipment by different groups of pupils has already been tried by several schools with successful results. The arrangement of the furnishings of the room itself and the association with the subject matter, so predominantly social, aid by supplying the right atmosphere for all kinds of functions.

Not only from the purely social but also from the economic point of view should this department be used by all members of the school community. The installation of the equipment requires the investment of a large sum of money. Society demands that every investment should yield as large returns as possible. As H. Woolston says:

We must turn to the school in order to find an agency that can consistently and comprehensively instruct our coming citizens as to the privileges and responsibilities of social life. From the standpoint of economy it has seemed wasteful to erect at great cost a building that can be used for only five hours a day during five days in the week for nine to ten months in the year. As fitting monuments for civic enterprise they should yield a larger utility in proportion to the funds invested.

By centering the social life around the domestic science department and by using the equipment for these important social activities much larger returns will be received for the sum expended than from that which is given by the regular class work in the department.

Both the methods by which the social life of the school may be developed through this department and the efficiency of the methods will depend upon the good management of the domestic science teacher and the coöperation given her by those supervising the social activities.

In brief, realization of the social value of education has brought to light the fact that the pupils must receive training in social life during the school hours. The school as a social unit should afford some definite medium for the expression of such life. As the domestic science department is social in subject matter and can furnish the means for carrying out these activities, it should be the logical social center.

PRACTICAL METHODS FOR TEACHING THE NUTRITIVE VALUE AND COST OF FOOD.

HELEN MARION DAY.

Bradley Polytechnic Institute.

One of the chief difficulties in making the subject of nutritive value and cost of food of real practical value to a student is the general lack of facilities and opportunity for continuous work in the giving of meals. The preparation and serving of an occasional isolated meal is valuable chiefly as practice in cooking various foods whose relation to each other must be considered in several aspects, and in appropriate methods of table setting and service. Even when the dietary value and the cost of such meals are carefully worked out the results are far from practical or convincing, for the very obvious reason that conditions are artificial. I do not wish to undervalue such work when conditions are such that nothing more can be done, yet a year's experience with a practical house where the actual conditions of family life are met by the students has made me very enthusiastic in advocating such a method as extremely practical and valuable.

For such practice we have a house near the Institute, the four first-floor rooms being fitted up as living room, bed room, dining room, and kitchen, with a laundry in the basement. Here all meals and housework lessons are given for the high school as well as for the college students. Owing to limited time we have not yet been able to have the high school girls do any more in giving of meals than they did under the old conditions of the cooking laboratory and practice dining room, but the conditions being more like those of the home, the work seems to be more practical even for them.

The college students have the dietary work in the winter term of the second year. They have had chemistry, bacteriology, one year of cooking, a term of food study immediately preceding the work in dietaries, and are taking at the same time a course in physiological chemistry.

For the practical course in meals the class is so divided that groups of three are formed, and each group serves three meals per day for three days, alternating the duties of hostess, cook, and waitress. Owing to the necessity of keeping up the regular school work at the

¹ Presented at the Washington Meeting of the American Home Economics Association, December, 1911.

same time, a group can not work three consecutive days, but one day a week or in two weeks according to the number of groups in the class. The meals, however, are given consecutively by the various groups, five days per week. The family served consists of members of the faculty who are glad to pay for the meals thus furnished at the rate charged at boarding houses in the vicinity. We try to have a "constant" family so that the food requirements may be unaffected by differences in conditions.

The money paid in constitutes the fund used by the students in making their purchases, all the marketing being done by the persons acting as hostesses for the week. In planning the menu for the week the various groups consult in order to have the best arrangement of food values and also for economy in marketing and using left overs. Each group begins serving at the noon meal so that the breakfast may be planned for and even started the night before.

The working out of the dietary for the three meals is done by the hostess for the day, this work being facilitated as much as possible by having standard recipes worked out in advance. The hostess is also responsible for all reports for the day and expenditures of money. The cook does the main part of the cooking for the three meals, but is assisted in the preparation of salads, desserts, etc. We try to have certain duties devolve definitely upon certain students and at the same time encourage the "good team work" so important for the success of such a plan.

Each day the value of the food eaten is compared with the standard selected and at the end of the week the average is again compared with the standard, discrepancies discussed, and suggestions made for adjustment.

The cost of food for the first set of meals is not limited, ordinary economy in choice of food being exercised. With the food value and cost of the first set of meals as a basis, the remaining meals are arranged to meet the standard as nearly as possible with as much variation in cost in a descending scale as may be inflicted without protest upon the family.

This practice in serving meals was followed by some five o'clock teas by the students in groups of four to invited guests chosen from the junior class and women members of the faculty. Here the dietary value was worked out, but more elaborate dishes being constructed and more expensive material used, the cost of food and value of labor in its preparation was emphasized. This practice in another form of serving and in dispensing hospitality was also valuable to the girls.

One other experiment that we tried last year was in connection with a course in large quantity cooking in the spring term of the second year. When the class was small all such practice could be given in our lunch room kitchen, but last year it was necessary to provide extra work. We let it be known among the housekeepers in the neighborhood that we would do cooking to order on certain days in the week. The orders came in abundantly and the results were most satisfactory. The girls took great interest and pride in the work, and not only gained greatly in proficiency in handling food material in larger quantities than in the ordinary cooking class, but also learned a great deal about what constitutes a saleable article. The cost of the food material, fuel, and time was calculated and the total compared with the price of similar foods for sale in good bakeries and the Woman's Exchange, thus setting the girls thinking about the trade element of our work. This is a valuable basis for good judgment in buying and awakens an interest in the work of the world.

OPPORTUNITIES FOR TEACHERS AND SPECIALISTS IN LAUNDRY WORK.¹

L. RAY BALDERSTON.

Teachers College, New York City.

The training of women as specialists in any field is followed by its growth eventually in all lines that represent economy of time, labor, material, or money. Our domestic science schools are training women as specialists in various household lines, but very few are today providing specialists for the laundry, although this is one of the largest problems of the household and one of the important social, economic, and sanitary questions of the day. Science verifies the claim made from the standpoint of cleanliness; popular verdict says that trained people are necessary for the best results. There is a demand today for trained teachers to carry on educational work in the laundry field, and persons who are looking for possible fields of service will do well to consider this one.

We have been considering the laundry course as a branch of domestic science, yet here is really a field of instruction and a profession which is competent to stand by itself. The time has come when

¹ Presented at the Washington Meeting of the American Home Economics Association, December, 1911.

trade schools need teachers of laundering; when classes of working women and girls need instruction in methods of household laundering; when hospitals, schools and colleges need superintendents for their laundries; when commercial laundries need efficient heads.

This suggestion is offered by one who is teaching classes in home and institutional methods of laundering, the students of which are training for home duties, for teaching, and for institutional supervision. Domestic science teachers are already legion; trained superintendents more numerous than formerly; but we cannot begin to supply the demand for efficient teachers and supervisors in this field of laundering. The demand comes from all parts of the United States and for various kinds of positions. The following examples have recently come to my attention: A superintendent for a laundry in a hospital is wanted; a laundry instructor in a trade school for girls; a superintendent of a commercial laundry; a manager in a co-operative effort; an instructor and manager in an Alaskan school. In all these cases ability in both domestic work and machine work is needed. We have no one to send, because in all cases the training in laundry work thus far has been as a branch of other departments and not with the idea of specialization.

Besides courses in domestic and institutional laundering, there is offered in Teachers College a certificate laundry course. This is a one-year course, admission to which requires high school graduation only. It is planned to give training not only in hand and machine work, but also to include allied courses in bacteriology, chemistry, textiles, etc., which will make for a broader, fuller equipment.

NOVEL COURSES AT MECHANICS INSTITUTE.¹

HELEN HOLLISTER.

Course in Lunch Room Management.—Repeated demands for women capable of managing lunch rooms or cafeterias led Mechanics Institute in 1907 to offer a practical one-year course of instruction along these lines, with its own students' lunch room as the basis of operations.

The minimum age limit for applicants was fixed at twenty-five years, and although at first occasional exceptions were made to this

¹ Presented at the Washington Meeting of the American Home Economics Association, December, 1911.

rule, it is now rigidly regarded, a certain amount of general experience and a mature judgment being deemed essential preparation.

The first class had four members. The present class has the maximum number, sixteen, while in the 4 years forty have completed the course.

The practical part of the instruction is given by Miss Anna M. Stubbs, a graduate of the normal course in domestic science. Under her direction the members of the class plan suitable and economical menus, working out the cost, and preparing, cooking, and serving luncheon to 200 students five days in the week. Each one in the class in turn takes entire charge, including the ordering of supplies and directing the work of others.

Additional experience is gained in the institute restaurant where 500 people are served daily. Here practice is had in the making of bread and pastry and the cooking of meats and vegetables for three meals each day. Other practice work is gained through the planning and preparing of teachers' luncheons at some of the city schools and of suppers for church societies, while through the coöperation of various local lunch rooms fine opportunity is offered for observation work.

The weekly schedule also includes lectures on food values, on hygiene, on house construction and sanitation, and on emergency nursing; lessons in business methods and book keeping, in laundry work, in marketing, in general care of the house, in fancy cooking, and in textiles and sewing as applied to the selection and care of household supplies.

A fine, intelligent class of women has taken up the work—trained nurses, housekeepers of experience, business women, and teachers. One young man entered the class last year, and proved himself so capable that he was retained by the institute as assistant manager of the lunch room and restaurant.

Others who have received certificates of graduation are scattered far and wide, acting as housekeepers, or managers of lunch or tea rooms in Christian Associations, high schools, department stores, and factories in a number of cities representing almost as many states.

The course has more than proved its importance and is regarded by the directors of Mechanics Institute as one of the most practical and useful established during its twenty-six years of existence.

Course in Infant Nursing.—In January, 1911, representatives from the Infants' Summer Hospital of Rochester, N. Y., and from the domestic science department of Mechanics Institute met to plan a

course of instruction in the care of children—the institute to give the theory, the hospital the practice. The product of such a course was expected to be a superior grade of nurse, capable of caring for children in an intelligent, scientific way—an important factor in the work of reducing the rate of infant mortality.

The course materialized in March, the institute offering it in the spring term. The three months of study were then followed by two months of hospital experience.

Candidates were required to be sixteen years of age or over with a love for and a knowledge of children and at least a grammar school education. Of the seven women who formed the class the youngest was twenty-one and four were high school graduates—most satisfactory material.

By lectures, discussions, and laboratory work the class was taught the importance of cleanliness, fresh air and proper diet. Lessons in food values were closely correlated with laboratory work, ranging from the care and preparation of milk to the cooking of a simple meal for a child of five.

Instruction in sewing included the making of a complete layette as well as the mending and care of children's garments.

Each week a talk was given by some prominent physician on such subjects as the care of the eyes, of the nose and throat, and of the skin; the diseases of childhood, etc.

Field work included visits to the city kindergartens for observation in the amusing of children and to the orphan asylum for experience in bathing infants.

The three months of study ended in June, and during July and August the members of the class put their instruction to practical test at the Infants' Summer Hospital on the lake shore, a few miles from Rochester, with great benefit both to themselves and to the hospital.

Although it is too soon to testify as to the independent worth of these young women, the course was considered thoroughly successful and the course is being repeated this year. An effort will be made to arouse a more general interest and to induce young mothers to attend at least a part of the lectures.

THE GRADUATE SCHOOL OF HOME ECONOMICS.

UNDER THE AUSPICES OF THE AMERICAN HOME ECONOMICS
ASSOCIATION.

*Fourth Biennial Session, Michigan Agricultural College, East Lansing,
Mich., July 1-26, 1912.*

The fourth biennial session of the Graduate School of Home Economics is to be held at East Lansing, Mich., during the four weeks of July 1-26, in connection with the Graduate School of Agriculture. The extension of the time from the two weeks of former sessions to four weeks has made it possible to arrange for laboratory courses in addition to the lectures and conferences.

Two laboratory courses are offered, each extending through the four weeks and occupying two hours a day. Food microbiology given by Professor Otto Rahn of Michigan Agricultural College, will be limited to a class of twelve, and demands a prerequisite of general bacteriology. Professor Kedzie of Michigan offers a course in chemistry in which special problems will be studied. Students registering for this course must offer general chemistry as a prerequisite.

The first week of the school will include lectures on nutrition by Prof. H. C. Sherman of Columbia; on the principles of jellymaking by Prof. N. E. Goldthwaite of the University of Illinois, and lectures and laboratory demonstrations on the chemistry of textiles, by Dr. J. Merritt Matthews of New York City.

During the second week, Dr. L. B. Mendel of Yale University will lecture and conduct a conference on nutrition, and Dr. Sophonisba Breckinridge of the University of Chicago will lecture on social economics.

The third week includes lectures on the physiology of the cell by Dr. C. E. Marshall of Michigan Agricultural College; lectures on costume design by Professor Carr of the University of Missouri; and two lectures by Prof. Amy Daniels of the University of Missouri. A series of laboratory lessons in food will be taught and discussed by Prof. Agnes Hunt of Michigan Agricultural College.

During the fourth week Miss Grace Smith of the Technical High School of Springfield, Mass., will lecture on industrial history in relation to the teaching of textiles. Dr. C. F. Langworthy, Professor Hunt, and President Isabel Bevier, will also lecture during this week.

Several conferences will be arranged during the session.

Requirements for Admission.—In conformity with the Graduate School of Agriculture a college degree, or recommendation from the school of graduation or the faculty with whom associated, will be required of those registering as students.

Expenses.—The matriculation fee is \$10 and this will admit a student to both the Graduate School of Home Economics and the graduate School of Agriculture. No laboratory fee will be charged.

Board and room may be obtained in the vicinity of the college for from \$5 to \$7 a week. A list of suitable boarding places will be kept in the office of the registrar for the convenience of students at the Graduate School.

Correspondence.—All correspondence relating to membership in this school should be addressed to Mr. A. M. Brown, Registrar, Michigan Agricultural College, East Lansing, Mich.

ALICE P. NORTON, *Chairman.*

FIFTH SESSION OF THE GRADUATE SCHOOL OF AGRICULTURE.

The fifth session of the Graduate School of Agriculture will be held at the Michigan Agricultural College, East Lansing, Mich., beginning July 1, 1912, and continuing four weeks.

Only persons who have completed a college course and taken a bachelor's degree will be admitted to the privileges of the school, except that admission may be granted to non-graduates who are recommended by the faculties of the college with which they are associated as persons properly qualified to profit by advanced instruction in agriculture.

Instruction adapted to the needs of graduate students will be given under the general heads of soils and plant physiology, animal physiology, agronomy, horticulture, animal husbandry and poultry, rural engineering, rural economics, and farm management.

A prospectus giving a complete schedule of courses and instructors and other information will be issued later.

A. C. TRUE, *Dean.*

THE ALCOTT HOME AT CONCORD.

To those who like to trace the development of the Home Economics movement in the United States and all that it implies, the practical experiments in communal living of the New England Transcendentalists, with their desire to put material things into the background and practice "plain living and high thinking," constitute an interesting chapter.

When these ideas were carried out at Brook Farm and at the Alcott Home in Concord, Mass., one recalls that Mrs. Alcott had many difficulties to overcome in carrying out her husband's theories of diet, and one hopes that the consolations of philosophy were an adequate recompense.

The Alcott home calls to mind also one of the most interesting experiments in the education of young children. How much Bronson Alcott's ideas of teaching young children by conversation rather than through books has influenced views of later educators it would be hard to say. At any rate, in the Alcott home grew up a wonderfully interesting family.

For this and many other reasons interest attaches to the following quotation which recounts a worthy union of women's club work with the preservation of a literary shrine and the inauguration of a philanthropic enterprise.

A movement inaugurated by Mrs. Henry C. Rolfe, president of the Concord Woman's Club, enlisted a committee to solicit funds from Louisa M. Alcott's admirers all over the country, and the enterprise was taken up so enthusiastically that although small subscriptions were received, they were so numerous that more than \$5000 was accumulated. The house has been acquired by the committee, and the repairs, apparently the first in about two hundred years, have already redeemed the place. The leaks have been stopped, and there is no longer any danger of the roof tumbling in. The four rooms especially associated with the writer and her sister, May, the artist, will be reserved for public inspection. Visitors will read over the mantel the inscription suggested to Mr. Alcott by Ellery Channing:

The hills are reared, the seas are scooped in vain
If learning's altar vanish from the plain.

The decorative drawings with which May Alcott relieved the utter bareness of the ill-furnished home—the figures on the woodwork, the Greek gods on the window casings, the painted nasturtium vine, and the little brown owl, memorial of the family of wisdom's birds which Louisa Alcott so loved, have been preserved. Former articles of furniture associated with the family have begun to find their way back to their old home—the piano and writing desk, a mirror which if it could reproduce what it has seen would be an amazing moving picture show, and various manuscripts.

But the big old house is not to be devoted wholly to a shrine of pilgrimage; the other rooms will receive house delegations of working girls during their brief summer vacations. This seems to be a most admirable memorial to a family whose ideals were certainly altruistic.

BIBLIOGRAPHY OF HOME ECONOMICS LITERATURE.

MARY D. S. ROSE.

MARCH 1, 1912.

1. FOOD.

The Purin Content of Common Articles of Food. H. D. Arnold and R. C. Larrabee. *Jour. Am. Med. Assn.*, January 6, pp. 18-20.

Knotberry Oil—Its Detection in Olive Oil. Siro Grimaldi. *Staz. sper. agrar. ital.*, vol. 44, pp. 291-300; ab. in *Chem. abs.*, January 20, p. 262.

Studies on Chicken Fat. M. E. Pennington and J. S. Hepburn. *Jour. Am. Chem. Soc.*, February, pp. 210-222. (In relation to the effects of cold storage.)

Tentative Mince Meat Standards. *National Food Magazine*, January, pp. 82-84. Discussion of pure food laws.

Varieties of Cheese: Description and Analyses. C. F. Doane and H. W. Lawson. *U. S. Dept. of Agr., Bureau of Animal Industry, Bul. 146*.

Self-rising Bread and Some Comparisons with Bread made with Yeast. H. A. Kohman. *J. Ind. and Eng. Chem.*, January, 1912, p. 20.

Pure Food. *Outlook*, January 13, pp. 68-70.

Concerning the Price of Beef. Victor Ayer. *National Food Magazine*, January, pp. 27-34. The story of a steer from its arrival at the stock yards till sold to the butcher.

The Score Card System Applied to Food Purveyors. *Jour. Am. Med. Assn.*, December 2, pp. 1843-1844.

Bag Cookery in the "Model Home." *Gas Logic*, November 1911, p. 5.

The Young Business Woman's Lunch. Bertha Stevenson. *Good Housekeeping Magazine*, November, 1911, pp. 695-699.

2. NUTRITION.

Studies in Nutrition. L. B. Mendel and M. S. Fine. III, The Utilization of the Proteins of Corn, *Jour. Biol. Chem.*, December, 1911, pp. 345-352; IV, The Utilization of the Proteins of the Legumes, *Jour. Biol. Chem.*, January, 1912, pp. 433-439.

Cottonseed Feeding Experiments with Mules and Horses. R. S. Curtis. *North Carolina Agric. Exper. Sta., Bul. 215*, June, 1911.

Studies on Water Drinking, VIII, IX, and X. H. A. Mattill and P. B. Hawk. *Jour. Am. Chem. Soc.*, December, 1912, pp. 1978-2032.

Fasting Studies: V. (Studies on Water Drinking; XI.) The influence of an Excessive Water Ingestion on a Dog after a Prolonged Fast. *Jour. Biol. Chem.*, January, 1912, pp. 417-432.

Studies in the Formation of Glycocoll in the Body. Albert A. Epstein and Sam'l Bookman. *Jour. Biol. Chem.*, December, 1911, pp. 353-371.

The Catabolism of Histidine. H. D. Dakin and A. J. Wakeman. *Jour. Biol. Chem.*, January, 1912, pp. 499-502.

Comparative Proteolysis Experiments with Trypsin. G. F. White and Wm. Crozier. *Jour. Am. Chem. Soc.*, December, 1912, pp. 2042-2048.

Creatine and Creatinine Metabolism. C. G. L. Wolf. *Jour. Biol. Chem.*, January, 1912, pp. 473-478.

Creatine and Creatinine Metabolism in Dogs during Feeding and Inanition with Especial Reference to the Function of the Liver. C. Towles and C. Voegtlin. *Jour. Biol. Chem.*, January, 1912, pp. 479-497.

The Receptive Relaxation of the Stomach. W. B. Cannon and C. W. Lieb. *Am. Jour. Physiol.*, January, 1912, pp. 267-273.

The Nature of Gastric Peristalsis. W. B. Cannon. *Am. Jour. Physiol.*, January, 1912, pp. 250-266.

The Nature of the Repair Processes in Protein Metabolism. E. V. McCollum. *Am. Jour. Physiol.*, December, 1911, pp. 215-237.

Recent Experiences in the Artificial Feeding of One Hundred Infants. F. C. Neff. *Jour. Am. Med. Assn.*, December 23, pp. 2068-2071.

Disorders of Purine Metabolism. A. C. Reed and G. B. Wallace. *Jour. Am. Med. Assn.*, January 6, pp. 20-25.

The High Calorie Diet in Typhoid. W. Coleman. *Am. Jour. Med. Science*, January, 1912, p. 77.

Experiences with the Coleman Shaffer Diet in Typhoid Fever. B. B. Crohn. *Jour. Am. Med. Assn.*, January 27, pp. 259-264. Practical suggestions as to diet.

Physiological Effect on Growth and Reproduction of Rations Balanced from Restricted Sources. Hart, McCollum, Steenbock, and Humphrey. *Wisconsin Agr. Exp. Sta., Research Bulletin* 17, June, 1911.

Is Vegetarianism Capable of World-Wide Application? A. E. Taylor. *Pop. Science Mo.*, December, p. 587.

3. HYGIENE AND SANITATION.

Sanitation of Villages and Small Towns, with Special Reference to Efficiency and Cheapness. W. J. R. Simpson. *British Med. Jour.*, November 11.

Report of Committee on The Purification of Sewage. *Jour. Am. Med. Assn.*, December 9, pp. 1903-1907.

Report of Committee on Model Health Ordinances for a City which is a Resort for Consumptives. *Jour. Am. Med. Assn.*, December 9, pp. 1897-1900.

Select List of References on the Public Drinking Cup Question. Library of Congress, in *Special Libraries*, vol. 2, no. 8, October, 1911.

Municipal Ordinances, Rules and Regulations pertaining to Public Hygiene adopted since January 1, 1910. *U. S. Pub. Health and Marine Hosp. Service. Public Health Reports*, vol. 26, 1911, no. 47, p. 1842.

"Comforter" Caries. E. H. R. Harris. *Lancet*, November 11. Effect of baby comforters on the teeth.

Experiments in Book Disinfection. L. B. Nice. *Jour. Am. Pub. Health Assn.*, November 1, p. 771.

Hygiene of Swimming Tanks. W. J. Lyster. *Jour. Am. Med. Assn.*, December 16, pp. 1992-1993.

On What do the Hygienic and Therapeutic Virtues of the Open Air Depend? Henry Sewall. *Jour. Am. Med. Assn.*, January 20, pp. 174-177.

Water and Waste. Morris Knowles, C. E. *Survey*, January 6, pp. 1485-1500. The sanitary problems of a modern industrial district in Alabama.

Sanitary Survey of Alabama Mining Camps.—Editorial. *Survey*, December 2, p. 1274. An account of an attempt to improve conditions in the mining camps of Alabama.

The Lodging House. W. P. England. *Survey*, December 2, 1911, pp. 1313-1317. Conditions in lodging houses.

Tuberculosis Prevention Costs in 1911. Phillip P. Jacobs, Assistant Sec'y National Ass'n for the Study and Prevention of Tuberculosis. *Survey*, January 20, pp. 1612-1613.

First Canadian Congress on Conservation of Health. Madge Macbeth. *Survey*, January 20, pp. 1614-1616.

Strikes for Good Health. Editorial. *Survey*, January 20, p. 1592. Strikes in factories because of bad sanitary conditions.

How to Prevent Typhoid Fever. L. W. Page, J. R. Mohler, and E. F. Smith. *U. S. Dept. of Agr., Farmer's Bul.* 478.

Infant Welfare: Methods of Organization and Administration in Italy. C. R. Henderson. *Am. Jour. of Sociology*, 17, pp. 289-302.

Conference on Infant Mortality. J. W. Schereschewsky. *Survey*, December 16, pp. 1369-1373. A discussion of the conference held in Chicago, November 16-18, 1911.

The Spirit of Youth and—Kansas City. Editorial. *Survey*, December 2, pp. 1272-1273. An account of the Child's Welfare Exhibit in Kansas City.

Report of Committee on Houses for Working People. *Jour. Am. Med. Assn.* December 9, pp. 1895-1897.

4. EDUCATION AND SOCIAL WORK.

The New Era in Education. Lillian Haeryette Johnston. *National Food Magazine*, February, 1912, pp. 109-117. The influence of teaching domestic science in Chicago public schools upon the homes.

Schools of Domestic Science. *American Housekeeper*, December, pp. 553-556; January, pp. 35-38. An alphabetical list of domestic science schools in the United States.

Trend in Public School Education. L. R. Alderman. *Oregon Teacher's Monthly*, January, pp. 261-263.

Sewing in the Elementary Schools. Anna G. Butler. *McEvoy Magazine*, January, pp. 204-206.

Teaching Household Science in the High Schools. Mildred Maddocks. *Atlantic Educational Journal*, January, pp. 13-14.

Schools of Agriculture, Mechanic Arts, and Home Making. *State of New York, Education Dept., Bul.* 494, May 1, 1911.

Course of Study and Syllabus for Guidance of Nurse Training Schools. *State of New York, Education Dept., Bul.* 498, July 1, 1911.

Tradition in Education: A Plea for a Modified Curriculum and for the General Recognition of Manual Instruction in the Schools. *Science Progress in the Twentieth Cent.*, vol. 6, (1911) no. 22, pp. 181-209.

An Economic Study of 500 Consumptives Treated in the Boston Consumptives Hospital. E. A. Locke and C. Floyd. *Boston Med. and Surg. Jour.*, November 25, p. 781. Losses in wages with cost and care in public institutions.

Women in Industry: The Chicago Stockyards. Abbott and Breckenridge. *Jour. of Polit. Econ.*, October, 1911, p. 632-655.

The Progress of Eugenics. James A. Field. *Quart. Jour. of Econ.*, November, 1911, pp. 1-68.

The Ancient and the Modern Lady. Anna Garlin Spencer. *Forum*, 46, pp., 662-678.

This is the first in a series of articles of great interest and importance. They attempt to state the function of woman in the social and industrial life of today.

Shrimps and Babies. Rene Bache. *Technical World Magazine*, January, 1912, pp. 497-504. An attack upon child labor.

Cost of Child Welfare Exhibit. Editorial. *Survey*, January 20, pp. 1593-1594. Some facts as to costs and methods of the recent Kansas City Welfare Exhibit.

The Child's Sense of Responsibility: How it is Bred into the German Girl. E. G. Cooley. *Mother's Magazine*, February, 1912, p. 39.

The Trend of Things. Editorial. *Survey*, January 27, p. 1647. Reference to the first International Congress of Farm Women.

The Power Behind Our Silk Mills. Scott Nearing. *Independent*, February 1, 1912, pp. 255-256. A short story dealing with the question of child labor.

5. TEXTILES AND CLOTHING.

Tapestries of Today. R. V. Goodhue. *House and Garden*, February, 1912, pp. 15-16.

An Advance Lesson in Oriental Rugs. Major L. B. Lawton, U. S. A. *The House Beautiful*, January, 1912, pp. 45, 46 and 56.

Persian Rug Weavers. *The House Beautiful*, November, 1911, pp. 34-36.

The January Linen Counter. Margaret Pendleton. *The House Beautiful*, January, 1912, p. 41. In interesting study of the source and kinds of linen.

Some Aspects of Ireland's Industries. Mrs. Harry Bottomley. *Handicraft*, January, 1912, p. 363.

Profits in Flax. Charles Richards Dodge, *Technical World Magazine*, January, 1912, pp. 565-570.

Select List of References on Wool, with Special Reference to the Tariff. Library of Congress, *Catalogue number 11-35005*.

Carbonizing Woolen Cloth. R. Shaw Cross. *Textile World Record*, December, 1911, pp. 108-110.

Cotton-yielding Trees. Lock Haven. *Textile World Record*, December, 1911, pp. 88-90.

Fireproofing of Woven Fabrics. Dr. Louis J. Matos. *Textile World Record*, December, 1911, pp. 130-131.

Formic Acid: Its Properties and Application in Dyeing and Finishing. T. Walther, *Färb. Ztg.*, vol. 22, pp. 61-62, abs. in *Chem. Abs.*, January 20, p. 296.

Malt Enzymes and their Employment in the Textile Industries. R. J. May. *Journ. Soc. Dyers and Colorists*, vol. 27, pp. 88-92; ab. in *Chem. Abs.*, January 20, p. 299.

Removing Spots and Stains from Textiles. Robert Dantzer. *Textile World Record*, November, 1911, pp. 94-95; December, 1911, pp. 90-92.

How to Buy a Girl's Clothing. Florence Helen Batchelder. *The Mother's Magazine*, January, 1912, p. 34.

Beauty in Daily Life: Why has it Disappeared Throughout the Civilized World? *Contemporary Review*, November, 1911, pp. 671-680. A plea for beauty in dress

6. MISCELLANEOUS.

What is the Home for? Martha Bensley Bruère. *Outlook*, December 16, 1911, pp. 910-914.

Savings or Efficiency. Martha Bensley Bruère. *Outlook*, January 27, p. 192.

Wife's Share: What Proportion of Her Husband's Income should she receive? *Harper's Bazaar*, January, 1912, p. 32.

The Ethics of Food: Bread. *Science Progress in the Twentieth Century*, vol. 6, 1911, no. 22, pp. 279-297.

The Cause of High Prices. T. E. Burton. *Science*, January 26, pp. 129-140.

Cost of Living in American Towns. Robert Coit Chapin. *Survey*, January 6, 1912, pp. 1446-1448. Report of an inquiry by the Board of Trade of London into working-class rents, housing, and retail prices, together with rates of wages in certain occupations in the principal industrial towns of the United States.

The Cost of Producing Minnesota Dairy Products. T. P. Cooper. *U. S. Dept. of Agr., Bureau of Statistics, Bul. 88*.

Efficiency in the Home. Janet M. Hill. *Boston Cooking School Magazine*, January, 1912, pp. 291-293.

The Conservation of Womanhood and Childhood. Theodore Roosevelt. *Outlook*, December 23, pp. 1013-1019.

Review of Heating Literature. Centrifugal Fan Testing. German Ideas for Heating and Ventilation of School Buildings. Modern Design in Hospital Heating. *Heating and Ventilating Mag.*, December, 1911.

Money for Home Economics. Editorial. *Good Housekeeping*, December, 1911, pp. 85-88. A discussion of the Page bill.

SOME RECENT BOOKS ON HOME ECONOMICS.

- What Dianthe Did.** Charlotte Perkins Gilman. Charlton Company, New York City, 1911. Price, \$1.00.
- The Standard of Living Among Industrial People of America.** Frank H. Streightoff. Houghton Mifflin Company, 1910, pp. 196.
- The Lady.** Emily J. Putnam. Sturgis and Walton, 1910, pp. 323. Price, \$250.
- Practical Motherhood.** Helen T. Campbell. Longmans, Green and Company, 1910, pp. 535. Price, \$2.00.
- Girls and Education.** L. R. B. Briggs. Houghton Mifflin Company 1911, pp. 162. Price, \$1.00.
- The Origin of the Family, Private Property and the State.** Frederick Engels. Translated by Ernest Untermann. Chas H. Kerr and Company, Chicago, pp. 217. Price, 50 cents.
- Home Life in Spain.** S. L. Benswsen MacMillan, 1910, pp. 317. Price, \$1.75.
- Home Life in Holland.** D. S. Meldrum. MacMillan, 1910, pp. 370. Price, \$1.75.
- Home Life in Germany.** Mrs. Alfred Lidgwick. Methuen Company, London, W. C., pp. 327. Price, \$1.75.
- Home Life in America.** Katherine A. Bushey. MacMillan, 1910, pp. 410. Price, \$1.75.
- Home Life in Italy.** Line Gordon Duff. MacMillan, 1909, pp. 386. Price, \$1.75.
- Food Inspection.** Hugh Macewen. Blackie and Company, London, E. C., 1909, pp. 256. Price, \$1.25.
- Checking the Waste: A Study in Conservation.** Mary Huston Gregory. Bobbs-Merrill Company, pp. 318. Price, \$1.50.
- The Mother's Year Book.** Marion Foster Washburne. MacMillan, 1908, pp. 253. Price, \$1.25.
- The Woman Movement in America.** Bell Squire. McClurg and Company, 1911, pp. 286. Price, 75 cents.
- How to Drain a House.** George E. Waring, Jr. Van Nostrand Company, 1902.
- Thermatic Fireless Cooker.** Diller Manufacturing Company, Bluffton Ohio, pp. 74. Price, 50 cents.
- Personal Hygiene and Physical Training for Women.** Anna M. Galbraith, M.D. Saunders Company, 1911, pp. 371. Price, \$1.50.
- Easy Entertaining.** Caroline French Benton. Dana Estes Company, pp. 251. Price, \$1.00.
- Practical Housing.** J. S. Nettleford. Garden City Press, 1910, pp. 194. Price, 50 cents.
- Handbook of Hospitality in Town and Country.** Florence Howe Hall. Dana Estes Company, 1909, pp. 312. Price, \$1.00.
- When Mother Lets us Help.** Constance Johnson. Moffat Yard and Company, 1909, pp. 82. Price, 75 cents.

ADDRESS OF WELCOME TO THE ASSOCIATION.¹

P. P. CLAXTON, D. LITT.

U. S. Commissioner of Education.

Madam President, Ladies, and Gentlemen: I regret that I have not had an opportunity to be present at the meetings in which you have been participating. It was with great pleasure that I accepted the invitation to welcome you to this city because I believe you are working at a vital problem of education. I have, however, no definite knowledge of your work, and can, therefore, say only a word about the place it should have in a general scheme of education.

Education must come out of the life of the individual. It is not a thing to be brought down out of the heavens or imported from the ends of the earth. It is not something foreign to be rammed down throats of children nor with which they are to be clothed. It must come out of the life of the individual. It is only an uplifting, an out-sifting, a refining, an organizing, and an interpreting of the life of the individual. This applies to the education of a people, or a race as well. In a people's own life we must find the elements to be used in its education. Froebel was right when he brought into the kindergarten the things familiar to the children in the villages of the particular part of Germany in which he lived. A kindergartener in a school for Indian children which I once visited was wrong when she tried to use Froebel's German material and then complained because the little Indians were not interested. While she was complaining to me, these children were having a great time with their blow guns. I said to her, "Why not catch the spirit of Froebel and do as he did. Why not use the material about you, that appeals to the experiences, the life, and the interests of these children, lifting up these experiences into consciousness, and giving to each individual experience its universal consecration?"

Stanley Hall has called our attention to the application of this same principle in dealing with primitive peoples and foreign civili-

¹Delivered before the Washington Meeting of the American Home Economics Association, December, 1911.

zations. It is a principle the missionary must learn. Paul was right when he did not try to impose on the Gentile converts to Christianity the things of Judaism, however important these may have been to the Jewish converts. In the fullness of time, out of the life of a people, possibly under the impulse and inspiration of a sympathetic teacher, must the higher ideal and a new system of thought and action ripen. It must come as an uplifting, outsifting, refining, organizing, and interpreting of the best of their own lives. If our modern missionaries could be as wise in this as some of the ancient missionaries were, we probably would make greater progress in the education and conversion of peoples with whom they are laboring so zealously.

The principle is the same in regard to education of children in the country and in the city. Hence the increasingly insistent demand for a differentiation in the work of the schools in the country and the city. It is not sufficient merely to establish a city school in the country. It does not fit.

I think the principle also holds in the education of the sexes. The interests of men and women differ broadly, as do their experiences. From the earliest times and among people of all grades of civilization, women have been interested in the things pertaining to the home and to life. According to Bernard Shaw men are interested in activity; women in being. Men are interested in producing the necessities of life; women in their proper use. Men are interested in the external circumstances of life; women in life itself. The interests of women center in the home and in the family, the fundamental social institution. She, therefore, has been and is the leader toward ever higher stages of civilization. She bears the torch of life. *Das ewig-weibliche zieht uns hinan!*

Now if girls are interested chiefly in the things of the little world of the home and the right use of the products of the labor of their brothers; if these things enter most largely into their experiences while boys are interested in and have experiences with things and activities of the greater world of the outside, then there must be a differentiation in their education. This must be so for development and culture as well as for practical utility. Pestalozzi was accustomed to say that he would turn the car of education around; that he would make the people intelligent about the life they must live. For him education consisted largely in an interpretation of the daily activities and the every day interests of the people. He was right. Women are interested in the home and its furnishing, in food, clothing, and shelter,

They spend most of the money, four-fifths of it I have seen stated somewhere. Their life is in the home; their interests are there and their affections. Hence out of the home and its activities and interests must come the materials of their education, and it is chiefly about the life of the home that they must be made intelligent.

I admit this does not apply with equal force to all women. Some there are whose interests are not centered so fully in the home and its economies. Doctor Chappell, a former principal of a school for women in Georgia, was right, however, in the main, when he divided all girls into two classes, Shakespeare girls and pie-crust girls. The division is certainly not bad. If both classes of girls were brought into the school, I think the pie-crust girls would seem much the larger class. The Shakespeare girl will profit most by the study of Shakespeare and what Shakespeare symbolizes. Something of the pie-crust studies will be helpful to her, no doubt, but she will profit most by a study of literature, history, mathematics, art, and music. In these she will find her chief joy; and most profit comes in education, I am sure, where most pleasure is taken. The growth of the spirit is always accompanied with joy. Where there is no joy, there is no growth. There is little of value for education in work done without interest and only because it is required. This applies in schools of all kinds, from kindergarten to college.

The pie-crust girls will profit most by what my friend symbolized by pie crust. They are not interested in literature, music, mathematics and art. They are not capable of abstract thinking as the Shakespeare girls are. The school should help them by making them intelligent about the things in which they can be interested. It should give them such instruction as will serve to intellectualize the work of their daily life in the home. We need a new definition of liberal education. We need to understand it as being that education which renders the worker free in his work, freeing him from the slavery which comes from ignorant and unintelligent imitation and enabling him to coöperate intelligently with the great laws of nature and make them his servants in carrying out his good will toward his fellow men. We also need a new definition of culture, that deepening, widening, refining, uplifting of the soul that comes only from living and laboring with strong purpose and good will for one's fellows. That education is most humanistic that appeals most directly and most intimately to the ordinary daily human interests. Rightly taught the science and the art of home making must rank very high in this regard.

As a second principle, the work of the school, if it is to be of most value, must be closely related to the contemporary out-of-school life of the individual. Most children in school and in college live a double life, a kind of Doctor Jekyll and Mr. Hyde life. When the school door closes, the school interests are left there. School and home have each their own interests, with too little relation of the interests of one to those of the other. This condition can not produce the best results. The school life should parallel more closely the best of the out-of-school life and the interests of the home. When Luther made his plea for education of all the people, he said he did not expect that all the children could or would go to school all the time. He expected they would go to school two or three hours in the day, that they would work with their parents the remainder of the time at useful occupations, and in helping to make their living. I think he fully realized not only the practical need of the work of the children, but its educational value as well. There is in this at least a suggestion for a wholesome reorganization of our school system. If children could attend school two or three hours a day three hundred days in the year and work at suitable occupations the rest of the day, it would easily be possible to prolong the years of their school life through the period of the high school and well on into the years of manhood and womanhood. The school would then offer an opportunity for a continuous interpretation of the experiences of daily life, and the daily life out of school would likewise furnish an opportunity for the application of the principles learned in school. There would then be a constantly increasing and developing interest in the work of the school and an ever-increasing zest in life.

Our present practice of trying to carry the school life in advance of real life and of the natural development of the child is artificial and ineffective. Doctor Solamon of Nääs, Sweden, one of the few philosophers that it has been my privilege to know, once said to me, "Did you ever think, Mr. Claxton, to what extent we put the cart before the horse in education? Children are active. Reflection comes only in later years. We seat children in the school room and require them to reflect on general principles. When they are just beginning to arrive at the years when reflection and understanding of principles are possible, we send them out to active life, where they do not have time to reflect." He thought the process should be reversed, to some degree at least.

Experience must furnish the concrete raw material for the education

of each individual, and not all this experience can be had in the first fourteen years of the child's life. In Goethe's *Wilhelm Meister*, you will remember, when Meister asked Arno, who was constantly twitting him with his lack of experience, "What experience is," Arno replied, "Experience is experiencing how other people experienced when they experienced their experiences." No one individual can experience for another, except in so far as he may be able to apperceive the experiences of the first through more or less similar experiences of his own of which he has become conscious through partial interpretation, at least. Therefore, the richer the experiences of the individual, the more the school will be able to do for him. The more the school life is prolonged and the more active and real the parallel life out of school, the better will be the results. The natural home life and the ordinary occupations of girls out of school should determine largely the character of their school work, and the school work should in so far as possible interpret for them their life experiences.

Schools have always been vocational. Vocational education is no new fad. When only one boy out of ten and one girl out of a hundred went to school and these came from homes of culture and refinement, the work of the school was adapted to fit them for the occupations which it was supposed they would follow when they became men and women. Since it was quite certain that most of them would become ministers, lawyers, physicians, doctors, politicians, authors, or gentlemen and ladies of elegant leisure, the work of the schools was adapted to fit them for these occupations. Now, when all the children of all the people are crowding into the schools, we must vary the work to meet their various needs and the many occupations in which they will spend their lives. I hope the time may soon come when all will have some leisure, enough to enable them to reflect on the great verities of life and to acquire for themselves something of the sweetness and light which can come only with a reasonable amount of leisure. No country can afford to have a laboring class of people who labor all the time, nor a leisure class of people who are idle all the time, even to the extent of being relieved from all forms of productive labor. Athens tried it. She reached a glory of attainment which few nations have ever reached, but her beautiful civilization grew out of the dung heap of humanity rotting beneath. The result we all know.

Into the education of every individual there must come some of the elements that appeal to the imagination and finer emotions, some of the things that touch the heart and refine the life. For all there

must be something of art and literature. All must have their minds more or less actively trained in the beginning at least of abstract thinking. The first occupation of all is manhood and womanhood, into which the elements of humanity must enter. The second is citizenship, and all must have the preparation which will enable them to perform the duties of citizenship and assume its higher responsibilities. In these respects and to this extent the education of all must be more or less alike. Beyond this the education of each individual must be determined largely by the vocation in which that individual is to make a living and serve his fellows. Whatever is needed to be done in the city, the state, and the nation for its welfare must be taught in the schools to those best fitted by nature to do this service, unless it can be taught more effectively and with less cost of money, time, and energy somewhere else.

This principle applies, I think, in the education of girls, and since most of them are to be home makers and mothers of children, their education should fit them for these occupations. Had I the making of schools for girls, I would make domestic science and Home Economics the heart and center of the whole work. All other subjects I would bring into vital connection with these in such a way as to make them more intelligent and to lift them as far as possible into the sphere of the fine arts.

I am in the fullest sympathy with your work. As Commissioner of Education, I am asking the present Congress for money enough to enable us to employ in the Bureau of Education a group of four or five women to help work out some of the great problems of education for home making, especially in the high schools and colleges of the country. If Congress responds to this demand, we shall be able to help you more at your next meeting, and we shall also be able to send, at your request, experienced women to assist in reorganizing the schools and establishing courses of study in home making in various parts of the country.

Because you are working at this most vital point of all the education of the country, to make people a little more intelligent about the home, about the expenditure of money, and the preservation and ennobling of the life which centers about the home, I welcome you to the city of Washington, and bring to you the greetings of the nation and wish you the highest degree of success in your great work.

EDITORIALS.

The Graduate School of Home Economics is one of the most important undertakings which the Association has in hand, and one which ought to have the support, not alone of the members of the Association as individuals, but of the universities, colleges, and other institutions which teach Home Economics. Its purpose, in short, is the advancement of the grade of instruction offered in such institutions by bringing together, for special training under university teachers and investigators of national reputation, those who are now teaching.

The Graduate School of Home Economics, like the Graduate School of Agriculture, has been devised as a special tool for a special purpose. Both sciences are new, and progress in each will be determined quite as much by the ability of those who are now teachers to keep in close touch with advance in their science, as it will by the training of new teachers. For a number of years now, at biennial periods, the workers in these two fields have come together and placed themselves under the instruction of those who are on the very frontiers of knowledge. The first graduate school of Home Economics was organized by Professor Atwater at Wesleyan University, and had the coöperation of Mrs. Richards. Successful schools have since met at the University of Illinois, Cornell University, and Iowa State College. The meeting this year at Lansing ought to bring together a large number of teachers of Home Economics, themselves to become, for the time being, industrious students.

Six bills, some of them new forms of old ones, have been introduced into the present Congress, all proposing grants of money by the national government for education in Home Economics. One bill proposes aid to a whole system of vocational education; two other bills favor extension education in agriculture and Home Economics; another bill would establish a bureau of domestic science in the Department of Agriculture at Washington; and another would make federal grants to the agricultural experiment stations for research in Home

Economics, including both domestic science and domestic art. It is certainly significant that so many measures are proposed, in one form or another, for giving federal grants to the extension of education for the home; and it is a proof of the widespread interest in this subject.

There is little probability that any of these bills will be passed at the present session of Congress, and many who are most interested in the subject feel that this fact is not to be wholly deplored. Those who agree on the importance of this branch of instruction, but who look upon it from different view-points, may now have opportunity to get together and unite on a better plan than any yet proposed. The American Home Economics Association has appointed a committee on legislation from whose action we may expect sound guidance in this matter. Meanwhile all members of the Association ought to secure copies of these bills (House of Representatives Nos. 1312, 15,256, and 11,542, Senate Nos. 3, 1369), study their provisions and write approval or criticism to their representatives in Congress. Our Committee on Legislation, of which Dr. B. R. Andrews, Teachers College, New York City, is chairman, will welcome suggestions.

The annual conference of the Administration Section of the American Home Economics Association will be held at the Lake Placid Club during the last week of June, 1912. Plans are already being made for the program, which will include important papers on the organization of household labor, school lunch rooms, equipment and organization of kitchens, institutional laundries, score-cards for measuring the efficiency of employees, reports on labor-saving methods and appliances, practice fields in training for household and institution management, and probably other topics. The full program will be sent to all members of the Association about June 1. All interested are invited to attend.

**Administra-
tion Section
Meeting in
June**

NEWS FROM THE FIELD.

The New England Home Economics Association has now, in its fourth year, about 175 members. Its president is Mrs. Margaret J. Stannard, principal of the Garland School of Home Making, Boston, and its secretary-treasurer is Miss Margaret E. Dodd.

**New England
Home Eco-
nomics Asso-
ciation.**

Eight meetings are planned for the present winter, six in Boston, and two in other new England centers.

At the second meeting of the year, held at the lecture hall of the Boston Public Library, on November 25, Mrs. Mary Hinman Abel was the speaker, and gave an interesting and stimulating address on Efficiency in the Household. She described the modern scientific method of conducting a great industry today, and contrasted this with the unscientific method in which the average house is run. She admitted that it is much more difficult to apply modern principles of efficiency to housework than to any other industry, but suggested as a remedy for many of the uneconomic conditions now prevalent the establishment of bureaus of Home Economics in every town and city, to serve as clearing houses for ideas on matters relating to right living.

As a result, the New England Association is planning to make the beginning of such a bureau in Boston, and hopes before long to have definite results to describe.

The association is committed to the effort of establishing a permanent home, which, whether a desk with a worker behind it or a whole building, shall come to be known as a center of Home Economics in Boston, where questions may be answered, or filed for study, if no answer is known; where books and leaflets may be gathered and plans be put into shape—in short, a place to receive and transmit the vibrations which shall traverse the entire New England States, with spare-waves for the world if they desire.

Greater publicity is being cultivated through reports of the meetings in the daily papers and with the hope that in time there may be the publication in leaflet form of some of the helpful contributions from the meetings and the work of the conferences.

This year's program contemplates the establishment of (1) a direct relation between the association and the home, that parents and homemakers may contribute to and find help in the solution of their many problems; and (2) of an indirect relation in the investigation into the needs of the community and the ways in which these needs may be met in the schools.

A meeting of the executive board was held February 24, by invitation of the secretary-treasurer, Miss Lenna F. Cooper, at the Battle Creek Sanitarium.

**Michigan
Home Eco-
nomics Asso-
ciation.**

The institution laboratories, kitchens, and treatment rooms were open for inspection, and especial interest was shown in the X-ray laboratory, where a demonstration was given by Dr. Reed. A luncheon served in the roof dining room gave occasion for the discussion of interesting diet questions. At the executive session

plans were made for the annual meeting of the association, to be held May 18,

at the Women's Building of the Michigan Agricultural College. Miss Marion Talbot, dean of women and head of the household administration department in the University of Chicago, will deliver an address. There will also be reports from committees appointed in November, 1911, on the constitution, membership, and standardization of high school and normal school courses.

The first meeting of the year was held November 28, 1911, at the New York Public Library. The subject of the address was the New York Public Library, and How to Use It, by Dr. Williamson, who personally conducted the members through the library. The annual luncheon was held January 20, and was a memorial meeting to Mrs. Richards. The February meeting was devoted to a discussion of art in the home. On March 19 a meeting was held in the Manhattan Trade School, and Mr. Arthur D. Dean, chief of the division of vocational schools, New York State Education Department, spoke on Vocational Education, and Miss Florence Marshall of the Manhattan Trade School on the work of the school. The May meeting will be held at Pratt Institute, the subject for discussion being Domestic Service.

This association met at Salt Lake City, November 28-29, 1911. A report of the committee on a course of study for the seventh and eighth grades was submitted by Miss Lizzie O. McKay, chairman, and one from the committee on school lunches by Mrs. Hazel Love Dunford, chairman. Mrs. Leah D. Widtsoe discussed the Ellen H. Richards Memorial Fund, and correlation of art and Home Economics work was treated by Mrs. Virginia S. Stephens.

An organization of the Home Economics teachers of Scranton, Pa., was effected November 19, 1911. Miss Gwendolyn Stewart was chosen president and Mr. Charles Welsh, secretary-treasurer. Bi-monthly meetings are contemplated.

An initial course in domestic science was offered to the women of Maryland, March 18-23. Among the lecturers were Dr. C. O. Appleman of the college on general bacteriology, cleaning, care of milk, and prevention of disease; Miss Frances Stern of Boston on water supply, household chemistry, and the chemistry of the laundry; Mrs. C. W. Foulk of Ohio State University on various household topics; Dr. W. L. Taliaferro of the college on drainage and disposal of waste, and Dr. M. M. Lyon on first aid to the injured. A meeting for teachers was held on the closing afternoon, addressed by Miss Emma S. Jacobs of the Washington, D. C., public schools and Mrs. H. J. Patterson.

The annual Michigan farmers' institute round-up was held at the agricultural college the last week of February. During two days the Women's Congress held sessions for the discussion of important questions on education, health, and the household. Mrs. C. W. Foulk, extension lecturer of the Ohio State University, spoke at four different sessions on the following subjects: Economy in the Home, the Balanced Ration, Bread, and Canning of Fruits and Vegetables. Dr. Clara M. Davis, of Lansing, gave an address on Modern Medicine and the Laity, and Prof. Jessie Phelps, of the State Normal College, spoke on Civic Hygiene.

This Women's Congress was the occasion for the meeting of the Michigan joint committee of the school patrons department of the National Education Association. Four of the five members were present, representing all the affiliated organizations except one. At the same time the educational committee of the state federation conferred on possible work for the coming year.

The Home Economics division of the college entered on a revised course of study at the opening of the college year. The departments of bacteriology, physics, botany, drawing, and design continue to offer special courses for women, and new courses relating to food and nutrition are given by the chemistry and physiology departments. The work in dietetics is enlarged, as is also that in textiles and household art. The economics and sociology department is a popular one, many women students electing work in these subjects. In the freshman and sophomore years an option in music is offered—two credits per term—and the work of the last two years is entirely elective, except that in Home Economics. These technical subjects amount to eight credits a year through the first two years, and to fifteen credits, or one-fourth of the total, in the junior year. Seniors are permitted to major in either domestic art or domestic science, or they may take both, in which case half of their time is devoted to the technical Home Economics work. The remodelled domestic science laboratory with the group system of desks and the complete new equipment makes possible more advanced study in this line.

A short course in Home Economics commencing January 4, 1912, and lasting eight weeks was offered for the first time. Instruction was given in cooking, sewing, home care of the sick, laundry work, sanitation, landscape gardening, care of flowers, growing of vegetables and small fruits, butter making, and poultry raising.

In the department of home science once a month the students give public demonstrations in cooking, all ladies of the town being invited. The outline shows a large and well chosen variety of topics.

This institution opened in New York in December, under the directorship of Miss Mary L. Read. The purpose of the school is to provide practical instruction in the home care and training of children, in eugenics, and in the problems of the family.

School of Mothercraft. The plan of the school includes a kindergarten, a day nursery, a boarding nursery, and instruction for adults. Three public meetings have already been held at the school: One in December at which the speakers were President David Starr Jordan, Mrs. Frederick Schoff, Dr. John

Cronin, and Mrs. Francis Gundry of Cleveland, Ohio; and two in January, one at which Professor Crampton, and Dr. Thomas D. Wood, of Columbia University, spoke on What is Eugenics, and the other on the Social Value of Mother's Training, addressed by President G. Stanley Hall.

An announcement has been received from this institution, which is conducted by Miss G. E. Sanders. Courses of from four to twelve lessons each are offered in elementary and advanced cookery, and special courses for sickroom cookery, courses for business women, training for maids, a waitresses and young housekeepers course, dietetics, marketing, and feeding of children.

Miss Josephine T. Berry writes as follows:

I have found here a notable opportunity. The college is large and strong. The science departments are up-to-date, and ready and very willing to help work out a strong course for our young women. My plan for a four years' course has been adopted. I can only hope it may prove to be a wise one. We are fortunate in having fine men in architecture and fine arts as well as in science. I myself am teaching physiological chemistry and dietetics.

The Naples Table Association for Promoting Laboratory Research by Women announces a prize of \$1000 for the best thesis written by a woman, on a scientific subject, embodying new observations and new conclusions based on an independent laboratory research in biological (including psychological), chemical, or physical science.

The theses offered in competition are to be presented to the executive committee of the association and must be in the hands of the chairman of the committee on the prize, Dr. Lilian Welsh, Goucher College, Baltimore, Md., before February 25, 1913. The prize will be awarded at the annual meeting in April, 1913. Each thesis must be submitted under a pseudonym and must be accompanied by a sealed envelope, enclosing the author's name and address, and superscribed with a title corresponding to one borne by the manuscript.

The papers presented will be judged by a regularly appointed board of examiners, or by such specialists as they may choose. The association reserves the right to withhold the award to the prize, if the theses presented are not, in the judgment of this board, of adequate merit to deserve the award.

This is the sixth prize to be offered by the association. In April, 1911, the prize was named the Ellen Richards Research Prize in recognition of the devoted service of Mrs. Richards as chairman of the committee on the prize since its appointment in 1900. Circulars giving additional information may be obtained from the secretary, Ada Wing Mead (Mrs. A. D.), 283 Wayland Avenue, Providence, R. I.

BOOKS AND LITERATURE.

The Principles of Human Nutrition. W. H. Jordan. The Macmillan Company. New York, 1912, pp. xii + 450. \$1.75.

This volume deals in a non-technical fashion with the problem of human nutrition in its scientific, economic, and social aspects. It is written in a conversational style by a recognized specialist in the field of animal nutrition, and is unique in the number of illustrations from agricultural practice. It is also one of the very few books devoted exclusively to the nutrition of the normal individual, and on this account especially desirable for the beginner in this subject.

Its purpose, as expressed by the author, is to cull out the technical facts from the large body of literature unavailable to the reader without special scientific training, and to center around these facts a philosophy of life.

Part I treats of the elements and compounds of human nutrition and the fate and function of foodstuffs in the body. It is almost inevitable that in the effort to treat so complex a subject very simply, certain facts are at different times differently emphasized and appear almost contradictory, as for example, when we read on page 5, "Just as the western farmer obtained heat by burning corn in the fireplaces, so do human beings maintain body temperature at the necessary degree by consuming food to be burned," and again on page 169, "The view is now held that all body heat is a secondary product, that combustion first supports muscular activity with heat as a waste product." There are two very unfortunate misprints in this part of the text, on page 25, where the classification of organic matter into two divisions, (1) proteins and non-proteins and (2) carbohydrates, fats, and acids is rather puzzling, and on page 34, where a column of bases is headed acids. In the treatment of the ash constituents, the importance of iron is much underestimated. None the less, this is by far the most satisfactory presentation of the fundamental facts of nutrition in any popular work.

Part II discusses the quantitative aspects of nutrition and offers many practical suggestions toward the realization of a well-balanced diet, with concrete illustrations, as on page 206, where are presented two meals of equal weight but greatly unlike in the amount of actual nutrients, or again on page 212, where two lunches of equal fuel value but very different amounts of ash constituents are given. The chapters on Food Economics and Special Dietetic Measures (food fads) are a welcome addition to the usual treatment of the subject, and the nutrition of the child is broadly treated. This Chapter (XIV) logically follows that on the Relation of Diet to the Varying Conditions of Life (XI); in fact, considerable rearrangement of the somewhat disconnected topics in this part of the book would add to its strength. The section on simplicity in diet needs to be interpreted as a plea for few dishes at a meal rather than a limitation of the individual to only two or three articles of food for a long period unless these are chosen with great discretion, so as to satisfy all the physiological requirements. In our present state of knowledge of the influence of specific foods, this is a difficult thing to do.

On the whole, this book is a welcome addition to our text-books on the subject of nutrition, and will prove of great value to the general teacher of the subject, who has hitherto been forced to depend almost entirely on pamphlet literature for the student who has not had advanced scientific training.

MARY D. SWARTZ ROSE.

A Study of Food, I. Edited by Mary P. Vanzile. *Agr. Ed. Kans. Agr. Col.*, 3, 1910, no. 1, pp. 64, figs. 10.

The eight chapters of this pamphlet, written by different persons, deal with such subjects as the definition and classification of food, inorganic and organic food substances, digestion and absorption, fats and oils, roots, tubers, cereals, fruits, sugar, starch, and green vegetables.

Food Preparation and its Relation to the Development of Efficient Personality in the Home. Laura C. Rockwood. *Pop. Sci. Mo.*, 79, 1911, no. 3, pp. 277-298.

A summary and discussion of Home Economics problems with some general deductions. "The training for educated homemakers should include a thorough knowledge of the subject of personal hygiene with its three divisions: (1) Nutrition, or a knowledge of the food requirements of mankind and the best way to provide for them; (2) environment, or a knowledge of air, soil, dwellings, clothing; (3) activity, or a knowledge of the correct proportion between exercise and rest."

What Children Should Eat. Edith Green. *Human Welfare Publications*, Southwest Harbor, Me., pp. 20.

This artistic little pamphlet will surely be welcomed by those for whom it is prepared—parents, teachers, kindergartners, and settlement workers. It is dedicated to "Mrs. Ellen H. Richards, who gave the impulse to the study of Home Science in America." What children should eat, when, how, and how much, how to choose, combine, and prepare their food are the subjects that are treated in the most terse, clear, attractive form. There are no introductions or farewells, no padding of any kind. It would be difficult to find an unnecessary word in the maxim-like statements that fill the 20 pages of this charming, quaintly illustrated booklet, and the teaching is sound. Even with the treatment of the subject What Food is Needed in Special Diseases the physician will have no quarrel.

Food and Feeding. *Brit. Med. Jour.*, 1910, nos. 2563, pp. 388-390; 2564, pp. 453, 454.

A discussion of vegetarianism, low proteid diet, and other dietary systems.

What Constitute Good Meals for the Average American Home? Elizabeth H. Patterson. *Nat. Grange Mo.*, 8, 1911, no. 2, pp. 10, 11.

In connection with this general discussion sample menus are given which show the weight of the foods selected, their cost, and their protein and energy content, as well as a table showing these factors for unit portions of common food materials.

The Food of Factory Operatives. A. Fischer. *Umschau*, 14, 1910, no. 28, pp. 549-553.

A considerable amount of information is summarized in this general discussion of the problem of providing a suitable diet for workmen.

Quick Lunches for Efficiency and Health. Alida Lattimore. *Survey*, 25, 1911, no. 25, pp. 1012-1014, fig. 1.

A brief account is given of methods followed in serving luncheons to large groups in schools and manufacturing establishments in Rochester, N. Y. The work has demonstrated that it is possible to supply good food under satisfactory conditions at reasonable prices and that the enterprise can be self-supporting.

Camp Cookery. H. Kephart. New York, 1910, pp. xvi + 154, figs. 13.

The kind and amount of provisions needed in camp, cooking utensils, and similar questions are discussed and directions given for the preparation of a large number of dishes. An appendix contains data regarding weights and measures used in cookery and regarding the weight and bulk of different food products.

Manual for Army Cooks, 1910. H. G. Sharpe et al. *War Dept., U. S. Off. Com. Gen. Doc.*, 379, pp. 185, figs. 23.

Kitchen equipment and devices are described, the cutting of meat discussed, and a large number of recipes given in quantities suitable for sixty men. Bills of fare are also suggested. Special sections are devoted to field cookery and to messing troops on railroad trains. Water cooling devices, improvised filters, and the experimental fireless cooker issued by the army subsistence department are described. As a whole the book contains much data of interest to teachers, students, and institution managers.

British Rural Life and Labour. F. G. Heath. London, 1911, pp. xi + 318.

The material for this book is drawn partly from "blue books" and other official sources, and partly from the author's own observation. It describes the classification, wages, and general living conditions of rural laborers in England, Wales, Scotland, and Ireland, and gives tables of wages and food in different districts. The appendix (pp. 181-300) contains a comparison between the conditions prevalent today and those of thirty or forty years ago. No one interested in dietetics in Europe should overlook such books as this.

Diet at Wycliffe College, Stonehouse. A. Broadbent. *Veg. Messenger and Health Rev.*, 8 ser., 8, 1911, pp. 45-49.

The food served to a group of fifty boys at Wycliffe College, Gloucestershire, who follow a vegetarian diet, is described and sample menus quoted. Milk and other dairy products as well as some eggs are used in addition to vegetable foods in considerable variety.

Discoveries of Social History from 1200 to 1910. *Decouvertes d' Histoire Sociale*, 1210-1910. George D'Avenel. Paris: E. Flammarion, 1910, pp. 334.

In this interesting summary and digest of historical data, a large amount of valuable information is given regarding living conditions in earlier times, particularly in France. Such topics are considered as wages, prices of food stuffs, domestic economy, household management, and agriculture.

The Rations of the Army of Aragon in 1285. A. Balland. *Rev. Sci.*, Paris, 49, 1911, I, no. 13, pp. 403, 404.

This article summarizes a study of the accounts of a commissary agent in the army of the king of France during an invasion of Aragon in the thirteenth century. Prices, measures, and materials are quoted. The staple items are wheat, barley, flour, bread, horse beans, peas, rice, almonds, salt pork, wine, small quantities of sugar, and oats. Portable mills were used for grinding the barley and wheat. These have disappeared from use in modern armies, as have also almonds, which were consumed in considerable quantities in the Middle Ages. Otherwise the staples of the present French army ration are much the same, plus army bread, haricot beans, salt, coffee, fresh and preserved meats, fats, condensed soups, and spirits.

Food of Patagonian Natives. C. W. Furlong. *Harper's Mo. Mag.*, 122, 1911, no. 732, pp. 813-827.

Food, shelter, customs, and other living conditions are described as a result of a personal study of the Tehuelches of Patagonia. It is apparent from the author's account that their diet consists very largely of meat, either game or more commonly the flesh of mares.

Cost of Living in Mexico. L. J. Kenna. *Daily Cons. and Trade Reps. U. S.*, 14, pp. 278, 279.

Information is summarized regarding the prices of foods and the source of food supply in Mexico.

Cost of Living in Siberia. L. Maynard. *Daily Cons. and Trade Reps. U. S.*, 14, p. 279.

Data regarding the price of provisions and family expenses are given.

Chinese Wages and Cost of Living. W. R. Dorsey. *Daily Cons. and Trade Reps. U. S.*, 14, p. 831.

This brief account contains some data regarding the kinds of food used by Chinese laborers in Shanghai. Pork, fresh and cured, ham, sausage, flour, rice, sugar, and tea are the articles mentioned.

Nutrition and Increased Cost of Living. Lichtenfelt. *Volksernährung und Teuerung*, Stuttgart, 1912, pp. 61.

This study is inspired by the increased cost of living in Germany. It includes a survey of available food materials, methods and cost of production, and causes

for increase of prices. Coöperative buying and selling, the establishment of government bureaus for the study of related questions, and international coöperation for the regulation of wages and prices are suggested as solutions of the problems raised.

Beef, its Quality and Classification. L. Villain. *Rec. Med. Vet.*, 86, 1909, no. 23, pp. 799-812, figs. 6; 87, 1910, no. 1, pp. 26-32.

Information is summarized regarding French methods of cutting meat in connection with discussions of quality and grading.

The Frozen Meat Industry in the Argentine Republic. P. Berges. *An. Soc. Rural Argentina*, 1910, p. 65-76.

This article gives a historical account of the frozen meat industry in Argentina, the statistics of the trade, and a description of the methods of production and sanitary inspection. It also discusses the comparative hygienic and nutritive value of chilled or frozen meat as compared with fresh meat, and the advantages of an increased consumption of frozen meat in Europe.

Study of the Composition of Sausage. L. Pautet. *Hyg. Viande et Lait*, 5, 1911, no. 9, pp. 505-513.

Information is summarized regarding the method of making different sorts of foreign sausage.

American Catfishes: Habits, Culture, and Commercial Importance. W. C. Kendall. U. S. Dept. Com. and Labor, *Bur. Fisheries Doc.* 733, pp. 39.

Catfishes of different sorts are described and their food value is discussed, as well as their food habits, cultivation for market, and similar topics.

The Care of Milk in the Home. *Mo. Bull. Ohio. Bd. Health*, 1, pp. 15-17.

Simple directions are given for the care and protection of milk in homes, particularly those in which the household equipment is limited.

The History, Development, and Statistics of Milk Charities in the United States. J. W. Kerr. *Pub. Health and Mar. Hosp. Serv., U. S. Pub. Health Rpts.*, 25, 1910, pp. 1451-1467.

Statistical and other data are summarized.

Microscopical Study of Cereal Foods. W. H. Kendell. *Midland Druggist and Pharm. Rev.*, 44, 1910, no. 7, pp. 419-422; abs. in *Chem. Zentral.*, 1910, II, no. 17, p. 1322.

An extended microscopical study of the starch and cell tissue of breakfast foods made from wheat, corn, oats, rice, and barley.

The Value of Utah Wheats for Bread Making Purposes. R. Stewart. *Deseret Farmer*, 8, 1911, no. 11, pp. 161, 168, 173.

In a discussion advocating the growing of wheats which combine yield and desirable chemical, milling, and baking qualities, data are summarized regarding Utah-grown wheats.

The Chemical Composition of Kaffir Corn. I. R. O. Baird and C. K. Francis. *Jour. Indus. and Engin. Chem.*, 2, 1910, no. 12, pp. 531-534, fig. 1.

The results of a comparative study of Kaffir corn and Indian corn are given, particularly with reference to proximate composition, the composition of the nitrogen-free extract, the value of the two grains for producing alcohol, the character of the fat and ash constituents, and the draft of the two crops on the soil. According to the authors' summary, proximate analysis shows that Kaffir corn compares favorably with Indian corn.

"Kaffir corn is more uniform than corn in composition. It is a cheap food. Alcohol and glucose can be produced cheaper from Kaffir corn than from corn if the cost of the raw material is alone considered. Kaffir corn removes a smaller quantity of the important plant foods from the soil than corn. This fact has been shown by analyses of the ash of both grains which were grown under similar conditions. The fat from the Kaffir kernel is a solid which melts at 44.2°. It should be valuable in the manufacture of soaps and fatty acid products."

The Soy Bean and its use for Food Purposes. R. Muschler. *Pharm. Ztg.*, 56, 1911, no. 41, pp. 415, 416, fig. 1; abs. in *Zentbl. Biochem. u. Biochys.*, 12, 1911, no. 4-5, p. 116.

A summary and discussion of data regarding the composition and uses of soy beans.

Banana Flour as a Food for Infants. E. Pritchard. *Brit. Med. J.*, 1910, no. 2598, p. 1145.

Data, including information based on the author's experience, are summarized which led to the conclusion that banana flour in the form of gruel or a decoction may be useful in infant feeding.

Receipts for Tomatoes, Peppers, and Cucumbers. Carrie N. Hyde. *Winthrop Norm. and Indus. Col. S. C. Bul.*, 3, 1910, no. 6, pp. 14.

A number of recipes are given.

The Preparation of Sauerkraut or Sour Cabbage. Schiller-Tietz. Abs. in *Deut. Essigindus.*, 14, 1910, nos. 48, pp. 353, 354; 49, pp. 361, 362.

A detailed description of methods for preparing this material.

The Dietetic Value of Fruit. W. R. Lazenby. *Trans. Mass. Hort. Soc.*, 1910, pt. 1, pp. 89-97.

In a summary of data on the food value of fruits and nuts the author states that he has found characteristic differences in the water content of under-developed and

well-developed fruits. "Nubbin" strawberries, "cull" peaches, and "runty" apples, contained less than 80 per cent as compared with 90 per cent in fine but not overgrown specimens of these fruits. He states further that 92 per cent of water was found in fine large peaches in comparison with 84 per cent in small peaches of the same variety.

Data are also recorded for a number of sorts of nuts, regarding the number of nuts in a pound, the percentage of shell or waste and the percentage of kernel, and the cost of nuts and of the edible portion.

"It was found during the course of the investigation that with the most careful cracking of some of the larger nuts, there is a 'milling' or cracking loss of nearly 2 per cent of the total weight of kernels."

Principles and Practice of Ice Cream Making. R. M. Washburn. *Vermont Sta. Bul.*, 155, pp. 92, dgm. 1.

The importance of the ice cream industry in the United States and the possible development of this industry in Vermont are discussed, a large amount of information on the classification of ice creams and other similar topics is presented, and the results are reported of studies of ice cream making particularly under factory conditions. As a whole this bulletin presents information of great interest to housekeepers and teachers, as well as to those engaged in the ice cream trade.

Quotations from the author's summary follow:

"There are two general classes of ice cream recognized; the plain (raw), and the French (cooked custard).

"The flavor is influenced by the fat content of the cream; by its freedom from contamination of all sorts; by a low cream acidity; by the addition of minute quantities of common salt; and by the ripening or aging of the ice cream. A good body is the result of the presence of plenty of fat, but not too much; of the aging and thorough cooling of the cream; and, sometimes, of the use of filters. A fine texture is promoted by the richness of the cream; by the proper conduct of the freezing process; by the aging of the cream; and, if the goods are not to be used promptly, by the use of a gelatinoid binder. Swell (or overrun) is caused by the incorporation of air into the cream, and is affected by the viscosity of the cream; by the rate of freezing; and particularly by the length of time elapsing while the cream is dropping from 34 to 29° F.; and by the speed of the agitating mechanism. The richness or leanness of the cream within working limits has but little effect thereon; neither does the use of gelatin, gum tragacanth, or other binders. The time element in the conduct of the process depends upon the initial temperature of the cream; upon the rate of flow and the temperature of the brine; upon the proportions of salt and ice used; upon the fineness or coarseness of the fragments of ice and the particles of salt; and upon the amount of sugar used in the cream.

"Its flavor, fat content, warmth or coldness, acidity, the method of handling (separation, pasteurization, homogenization, etc.), all these have effect upon the final product. A clean cream is of course essential. Neither a very rich nor a too thin cream should be used, about 22 per cent fat seeming ideal. . . .

"A filler is used to give body; a binder to prevent coarse crystallization when held for one day or longer. Starch, flour, eggs, and rennet are used as fillers with greater or less satisfaction, generally less. Gelatin, gum tragacanth, and ice cream powders

are used as binders often with good satisfaction; but their use, though legal in Vermont, is forbidden in several States. There appear to be arguments on both sides of the question as to the advisability of the use of binders in commercial cream. The adverse arguments are that inferiority and age are thus concealed, the swell unduly augmented, the use of low grade materials encouraged, insanitary holding conditions favored, and adequate food control rendered difficult. Those advanced in favor of their use are that they prevent granulation and consequent deterioration, discourage the return and reuse of unsold goods, and assist trade regulation.

"The reasons for, the necessity of, and the directions for modifying and standardizing of creams used for ice cream making are described and examples of the calculations given, together with tabulated matter pertinent thereto; a scheme for the simple testing of the butter fat content of ice cream is explained; a score card for ice cream judging is suggested; the method of calculating ice cream yields is reviewed; the equipment necessary for one to enter upon commercial ice cream making on a moderate scale is indicated; the profits of the industry as compared with butter making are shown; a few unsolved problems are briefed; references are made to literature which will prove helpful to operators; the scant bibliography is listed; and the bulletin is closed with an index."

A number of formulas for ice cream making are presented. The bulletin also contains a list of references to ice cream literature.

Ice Cream. A. McGill. *Lab. Inland Rev. Dept. Canada Bul.*, 218, pp. 15.

Of 125 samples examined 88 were reported up to standard with respect to the amount of fat required, namely, 14 per cent. According to the author there has been a very marked improvement in the quality of Canadian ice cream during the past two years.

The Solubility of Zinc Electroplate in Lemonade and Citric Acid Solutions. H. E. Barnard and H. E. Bishop. *Ann. Rpt. Bd. Health Ind.*, 27, 1908, pp. 254-256.

Under the auspices of the Indiana State Board of Health, experiments were undertaken to determine the amount of zinc dissolved when lemonade and citric acid solutions were kept for varying lengths of time in galvanized iron receptacles.

The results showed that the citric acid solutions were much more active than the lemon solutions, though their acid flavor was about the same. The length of time the solution was in contact with the container also exercised a marked effect, much more of the zinc being dissolved on the second and third day than on the first. Considering both lemonade and citric acid solutions, a range was noted of from 0.0815 gram zinc sulphate per 100 cc. in the case of a sample of lemonade kept in a container twenty-four hours to 3.032 grams in the case of lemonade in contact with the container for seventy-two hours. "As the dose of zinc citrate runs from 0.2 to 0.8 gram, it is evident that a person drinking an ordinary 'schooner' of this lemonade would be taking into his system a very large dose of this salt."

The state board of health accordingly issued a rule forbidding the use of zinc-coated metal containers in the manufacture and storage of acid drinks.

DEPARTMENT

OF

HOUSEHOLD SCIENCE

Commercial Food Products of Special Dietetic Value. A. De Souza Reis.
2. Cong. Internat. Hyg. Aliment. Bruxelles (Proc.), 1910, Sect. 6, p. 72.

This article is a protest against the unbased claims made by many manufacturers of proprietary foods for the special dietetic value of their wares, and a plea for proper official supervision of the advertisements and labels of such goods.

Some Questions of Metabolism and Nutrition. A. Gigon. *München. Med. Wchnschr.*, 58, 1911, no. 25, pp. 1343-1347.

From a summary of data and the results of his own experiments, the author concludes that he has proved with certainty that the greater part of the carbon of protein remaining after the cleavage of urea is used by the normal body for fat formation, a smaller part being used for carbohydrate formation.

The Protein Requirements; or, "Do We Eat too Much Meat?" W. Tibbles.
Brit. Med. Jour., 1911, no. 2655, pp. 1349-1451.

This is a discussion of current theories on the subject, supplemented by estimates of the per capita protein consumption as indicated by the statistics of food materials consumed in various countries. According to the latter figures, the author questions whether physiologists have not over-estimated the protein consumption, at least in European countries. He concludes that save for persons in the decline of life, Voit's "optimum" standard furnishes a safer guide than Chittenden's physiological "minimum."

The Purin Content of Common Articles of Food. H. D. Arnold and R. C. Larrabee. *Jour. Amer. Med. Assoc.*, 58, 1912, no. 1, pp. 18-19.

The authors summarize present day conceptions of the purin bodies as they are found in the body and in food materials with special reference to such points as concern the general medical practitioner.

Disorders of Purin Metabolism. A. C. Reed and G. B. Wallace. *Jour. Amer. Med. Assoc.*, 58, 1912, no. 1, pp. 20-25.

A discussion of current theories of normal and abnormal purin metabolism, together with the reports of tests of purin metabolism made by the authors on patients suffering with gout, parenchymatous nephritis, chronic and recurring acute articular rheumatism and syphilitic and alcoholic cirrhosis, with a case of normal purin tolerance for comparison. The effect of certain drugs, notably soluroi, is also noted.

The Melting Point of Fats as it Affects the Speed with which the Stomach is Emptied. F. Tangl and A. Erdelyi. *Biochem. Zeitschr.*, 34, 1911, pp. 94-100.

Experiments were made on dogs with fats of such varying melting points as linseed oil, olive oil, pork fat, and beef tallow. In general it was determined that the speed with which the fats leave the stomach stands in direct relation to their melting point; the higher the melting point, the slower the passage of the fat through the stomach. If the fats of high melting point were warmed to from 47 to 55°

their passage was hastened. If the various fats are brought to the same degree of viscosity by changing the temperatures, they leave the stomach at the same rate of speed.

The Effect of Foodstuffs in the Causation and Prevention of Dental Caries. J. S. Wallace. *Brit. Med. Jour.*, 1910, no. 2592, pp. 617-619.

The author believes that while bacteria are the exciting cause, dental caries is due to the lodging of "viscous and fermentable carbohydrates about the teeth," and the resulting acid formed. He emphasizes the need for using fibrous foods as a means of counteracting such conditions. The diet which he considers not conducive to the formation of dental caries in children is made up of fish, meat, fruit, salads, and similar foods, while the one which he considers likely to induce dental caries consists of porridge and milk, bread and jam, mashed potatoes, and other soft foods.

The paper is followed by a discussion.

The Formation of Tartar from Products Derived from the Carbono-phosphates of Saliva. A. Barillé. *Jour. Pharm. et Chim.*, 7 ser., 3, 1911, no. 12, pp. 582-585; abs. in *Chem. Zentbl.*, 1911, II, no. 5, p. 297.

According to the author's observations, tooth powders containing weak acid, such as citric acid, benzoic acid, thymic acid, or boric acid are to be recommended for preventing the formation of tartar, as is also the use of sour fruits after meals, or water containing carbonic acid. Alkaline dentifrices, in his opinion, should not be used.

The Importance of Common Salt in Metabolism. H. Strauss. *Berlin. Klin. Wchnschr.*, 47, 1910, no. 50, pp. 2292-2295.

A digest of data on the relation of salt to nutrition, particularly with reference to pathological conditions. Such a paper is of interest as it bring together much data on the question, too often discussed on the basis of belief or opinion rather than on the basis of experimental research.

Rules and Regulations for the Enforcement of the [Florida] Pure Food and Drugs Law. B. E. McLin and R. E. Rose. Tallahassee: Dept. Agr., 1911, pp. 26.

The regulations approved June 5, 1911, are presented.

Abstract of Amended Pure Food and Drugs Law. R. E. Rose and B. E. McLin. *Pure Food and Drugs Law [Fla.]*, 1911, Circ. 1, pp. 7.

The attention of manufacturers and others is directed to the amended state pure food law.

Enforcing the Provisions of the Pure Food and Drugs Law. R. E. Rose and B. E. McLin. *Pure Food and Drugs Law, [Fla.]*, 1911, Circ. 2, pp. 3.

The dates on which certain provisions of the pure food and drugs law of 1911 became effective are stated and the matter discussed.

Inspection Work in Caddo (Shreveport) and other Parishes. *Bien. Rpt. La. Bd. Health*, 1908-09, pt. 3, pp. 7-15.

In connection with the annual health report for 1909 some information is given regarding the inspection of bakeries, the milk inspection, meat and its inspection, and the examination of a sample of meat.

Pure Food Work in Westfield, Mass. Margaret Wagner. *Collier's Weekly*, 47, 1911, nos. 23, pp. 13, 14, 22, figs. 4; 24, pp. 16, 17.

A popular account is given of analytical and inspection work carried on for a number of years largely under the auspices of the state normal school. As a result of this work a list was prepared of manufacturers whose goods were judged on examination to be free from adulteration. It is pointed out that such a list by no means represents all the manufacturers of pure products.

Simple Tests for Food Purity—What the Housewife may do to Detect Adulterations. S. L. Bastin. *Sci. Amer.*, 105, 1911, no. 20, pp. 432, figs. 10.

Some methods for detecting food adulteration are described in a popular way.

The Exclusion of Adulterated, Sophisticated, and Inferior Materials from Commerce as a Result of Strict Control of Food Supplies. A. Juckenack. *Ztschr. Untersuch. Nahr. u. Genussmittel.*, 21, 1911, no. 2, pp. 83-91.

Statistical and other data are summarized and discussed regarding the improvement in conditions due to pure food work.

Sanitation of Bakeries and Restaurant Kitchens. C. B. Ball. *Jour. Amer. Pub. Health Assoc.*, 1, 1911, no. 2, pp. 102-108.

A summary of information based on experience gained in dealing with this subject in Chicago and suggestions for betterment.

Sanitary Inspections. *Ann. Rpt. Bd. Health Ind.*, 28, 1909, pp. 353-420.

The board of health work undertaken with reference to the sanitary control of food-producing and distributing establishments and canneries is reported.

The Bacterial Condition of Protected and Unprotected Foods at Restaurants, Meat Markets, Grocery Stores, Bakeshops, and Fruit Stores. H. E. Barnard. *Ann. Rpt. Bd. Health Ind.*, 27, 1908, pp. 517-523, pls. 4.

The author concludes that foods kept in glass cases were in every case practically free from dust and accompanying bacteria, while food on exposed tables and racks was surrounded by air heavily laden with dirt and bacterial life. Cleanliness of floors and utensils lessened to a certain extent the number of bacteria present, but counters and stands near sidewalks were always surrounded with atmospheric dust and dirt. The author's studies were concerned chiefly with the relative number of bacteria found on the culture plates inoculated under different conditions and the types of bacteria were not thoroughly differentiated. "But there can be no doubt that they were varied and included both harmless and injurious forms, originating

in the manure of the streets, the spittle from diseased lungs and nasal passages, and in every other form of the waste products of men and animals."

The Occurrence and Survival of Micro-Organisms on the Surface of Pastry and Confectionery Exposed on Streets and in Public Places. E. Maurel. *Compt. Rend Soc. Biol.*, Paris, 69, 1910, no. 33, pp. 427-430.

From experiments reported the author concludes that a large number of bacteria are found in large numbers on the surface of confectionery and pastry exposed for sale without protection and that such bacteria are capable of reproduction and may be dangerous.

Ins and Outs of Eatinghouses. Cornelia G. Mather. *Ill. Agr.*, 16, 1912, no. 5, pp. 166-168.

This article discusses the general question and includes a proposed score-card for judging restaurants, etc.

A White List of Food Manufacturers. Purity is the Best Policy. L. B. Allyn. *Collier's Weekly*, 48, 1911, no. 7, pp. 23, 24, 26, figs. 7.

A "white list" is given of food manufacturers whose goods were shown at the recent pure food show in New York.

The Arrangement of the Kitchen in Institutions for the Care of Large Numbers. W. Sternberg. *Ztschr. Hyg. u. Infectiouskrank.*, 70, 1911, no. 2, p. 215.

A discussion of the best arrangement of buildings with special reference to kitchens in hospitals, barracks, etc., with the general conclusion that it is advantageous to decentralize the kitchens and serving rooms, and that in hospitals the location of the kitchen should be as important a factor in determining the plan of the buildings as that of the operating room.

Heat-Insulating Efficiency of Vacuum-Jacketed Bottles. A. A. Somerville. *Sci. Amer.*, Sup., 72, 1911, no. 1855, p. 53, dgms. 2.

From an experimental study the conclusion was reached that the highest efficiency in maintaining low temperature was attained when the layer of liquid in the vacuum-jacketed bottle was 6 or 7 in. deep, or, in other words, when the bottle was nearly filled.

Fibers Used in Textile and Allied Industries. C. A. Mitchell and R. M. Prideaus. London, 1910, pp. xii + 196 + 32, figs. 66.

Microscopical descriptions and chemical tests are given as well as general descriptive material regarding wool, silk, cotton, and other fibers in this handbook, which, as the authors state, deals with the principal fibers used in "what for want of a better term may be called the 'isolated' condition," that is, "fibers used in a more or less dissociated condition in spinning, weaving, cordage, brush making, and upholstery."

The Determination of Cotton and Linen, Physical, Chemical, and Microscopic Methods. Alois Herzog, Ph.D., Prussian Higher Textile School, Sorau. Translated by Ellen A. Beers, B.S., School of Household Arts, Teachers College. Pp. 36. Price 25 cents.

Miss Beers' translation makes available a very useful laboratory guide for college and high school teachers of Home Economics. The methods are illustrated by some two dozen photographs reproduced in half-tone illustrations and in two color prints. The methods have been used very successfully in Professor Vulte's laboratory at Teachers College, despite the handicap that the methods were available only in the German edition. Now that the translation has been made by Professor Vulte's assistant, the manual will be placed in the hands of each student. It is a first step to furnish text books for scientific work in the domestic art division of Home Economics.

Studies of the Microscopical Examination of Fibers, Particularly Linen and Hemp, for Technical Purposes. R. Korn. *Jahresber. Ver. Angew. Bot.*, 7, 1909, pp. 189-234, pls. 2, figs. 12.

Extended investigations are reported on the identification of fibers.

Plumbing and Household Sanitation. J. P. Putnam. Garden City, N. Y., 1911, pp. 718, pl. 1, figs. 652.

Historical data, theories which have to do with the general subject of plumbing, and practical and theoretical plumbing problems are discussed in this volume which represents a course of lectures delivered before the Plumbing School of the North End Union, Boston.

The Cornell Reading Courses. Lesson for the Farm Home. Household Decoration. Martha Van Rensselaer and Helen Binkerd Young. Ithaca, N. Y., December, 1911.

Another excellent bulletin in the Cornell University farm-home series, which aims to review the principles underlying the problem of home decoration. Every extension department of Home Economics teaching should keep in touch with the developments at Cornell.

Domestic Science Practice. Lillian C. Athey. Washington, 1910, pp. 82.

In this volume material prepared in sheet form for distribution and use in conjunction with lectures at the Cathedral Domestic Arts Institute and with other methods of instruction in the preparation of foods has been bound together and provided with an index.

A Syllabus of Household Management. Mary L. Furst. *Teachers Col., N. Y., Bul.*, 3d ser., 1911, no. 2, pp. 24.

This is an outline of the "course of study in household management offered in the School of Household Arts, Teachers College. This course, in itself independent, shows the bearing of many detailed courses offered by the school as far as they can be correlated and interpreted in the light of the general problem of the housekeeper."

Housekeeping Notes. Edited by Mabel H. Kittredge. Boston, 1911, pp. v + 97.

This is a series of lessons on how to furnish and keep house in a tenement flat, prepared for use in the Association of Practical Housekeeping Centers in New York. The object of the housekeeping center or model flat is to instruct the people of the tenements in the art of healthful housekeeping by means of illustrations and daily lessons. A class consists of from six to eight pupils and the work is all group work. Lessons in cleaning, hygiene, cooking, and all matters connected with the rearing of children, personal health, and the most economical use of limited means, are outlined, and a list is given of suitable furnishings for a model housekeeping flat or home for five people, with the itemized cost.

How Philadelphia Teaches Concerning Distant Countries. *Cuba Mag.*, 2, 1911, no. 8, pp. 31, 32.

An outline is given showing how the Philadelphia Museum enables school teachers to bring classes of children to see the economic products of the country about which they have been studying, and how these trips to the Museum are supplemented by illustrated lectures given by persons connected with the Museum or with the department of education.

A List of Books on Domestic Science in the Public Library of the City of Boston. Published by the Trustees, Boston, 1911, pp. 78. Price, 10 cents.

This list of books in the Boston Public Library should be secured by all interested in the literature of Home Economics. It suggests the thought that similar lists might, with advantage, be compiled of the collections in our principal public and university libraries. Such a list throws light on many interesting matters. To cite a single instance, one finds entries of the various editions of Miss Katharine Beecher's *Treatise on Domestic Economy*, showing that it was published originally in Boston in 1841, with revised editions in 1842 in Boston and New York, and successive editions in 1842, 1843, 1847, 1849, 1852, 1854, and 1867.

Among other lists published by the Boston Library are the two on Higher Education of Women, price ten cents each.—B. R. ANDREWS.

The Magazine of Domestic Economy. London, W. S. Orr and Company, Paternoster Row; and W. R. Chambers, Edinburgh, vol. 2, 1837.

Volume two of this early journal on Home Economics has recently come to the writer's attention. It includes articles on the ventilation of houses, family mills for grinding wheat, flower painting, cookery, reading, glass making, and the domestic economy of glass and soap making. There are miscellaneous notes on markets, literary material, articles of diet, as oatmeal for children, carving, the philosophy of toasting, vails (or gratuities) to servants, the economy of fuel, and "out of debt, out of danger." The contents of the *Magazine of Domestic Economy* show that seventy-five years ago there was a clear appreciation of the very problems which are now concerning the Home Economics movement.—B. R. ANDREWS.

Vocational Education. Peoria, Ill.: The Manual Arts Press.

This new bimonthly magazine has been established at Peoria, Ill., backed by an advisory board of thirty-three educators, manufacturers, and labor leaders repre-

senting all parts of the country, who are advocates of more industrial training in public education. The magazine is edited by Prof. Charles A. Bennett of the Bradley Polytechnic Institute of Peoria. He is assisted by William T. Bawden, Assistant Dean of the College of Engineering of the University of Illinois, Frank M. Leavitt of the University of Chicago, Arthur D. Dean of the New York State Education Department, and William E. Roberts, Supervisor of Manual Training of Cleveland. The leading article in the first number of the magazine, entitled Vocational Education and Its Future, and contributed by Edmund J. James, President of the University of Illinois, points out that vocational education is quite in harmony with the ideals prevalent today in American colleges and universities. Among the other contributions are an illustrated article on the Elementary Industrial School in Cleveland and one on sheet metal work in the Illinois State Reformatory.

Industrial Education. C. E. A. Winslow. *Health Education League Bul.*, 24, 8 Beacon St., Boston, Mass. Price, 7 cents.

This is another of the admirable Health Education Series. The waste of life on the railroad, in the mine, and in the shop is clearly set forth. Some of the topics treated are industrial poisons and their prevention, tuberculosis in the dusty trades and protection of the worker from dust, the economic value of factory ventilation, eye fatigue and eye strain, medical supervision, and workmen's compensation laws.

Studies in Economic Relations of Women. Issued by the Department of Research of the Women's Educational and Industrial Union, Boston. Longmans, Green and Company, publishers, New York City.

It is announced that this series, of which three volumes are now published, will present from year to year monographs upon the various questions involved in the economic relations of women, in their industrial employment, in their position in the commercial world, and in their professional careers. It will also include studies in comparative legislation, especially as related to women's work, in the economics of the home, and in the economics of consumption. These monographs will be largely the work of women who have held fellowships in the Department of Research, and who may also have pursued studies for the degree of Master of Arts or Doctor of Philosophy in the Department of Economics or Sociology at Radcliffe, Wellesley, Simmons, or Tufts Colleges, the Massachusetts Institute of Technology, or Columbia University, in connection with research work.

The three volumes thus far issued are as follows:

Volume I.—*Vocations for the Trained Woman: Opportunities other than Teaching.* Edited by Agnes F. Perkins. Price \$1.20, net; postage 16 cents extra.

Among the lines of work discussed are civic service, social service, scientific work, domestic science and arts, agriculture, business, clerical and secretarial work, literary work, art, and special forms of teaching.

Volume II.—*Labor Laws and Their Enforcement, with Special Reference to Massachusetts.* Edited by Susan M. Kingsbury, Ph.D. Price \$2.00 net; postage 24 cents extra.

The chapters of this book deal respectively with the early history of factory legislation in Massachusetts; unregulated conditions in women's work; weakness of the Massachusetts child labor laws; administration of labor legislation in the

United States; labor laws of Massachusetts, 1902-1910; and the regulation of private employment agencies in the United States.

Volume III.—*The Living Wage of Women Workers: A Study of Incomes and Expenditures of 450 Wage-earning Women in the City of Boston.* By Louise Marion Bosworth. Edited With an Introduction by Professor F. Spencer Baldwin, Ph.D., Boston University. Price, \$1.00 net.

The table of contents is as follows: Chapter I, Introduction; chapter II, Homes and Lodgings; chapter III, Nominal *versus* Actual Income; chapter IV, Food; chapter V, Rent; chapter VI, Clothing; chapter VII, Health; chapter VIII, Savings and Debts; and chapter IX, Miscellaneous Expenditures, including Recreation and Education.

"This material was collected through budget schedules and personal interviews. Although the investigation was thus limited in scope, it is believed that the results are fairly representative of the living conditions among working women of all ranks in an American city.

"The expenditures of the \$9 to \$11 wage group may be taken as representing the minimum living wage. This class stands midway in the wage scale and represents roughly the average of all women workers covered by the investigation. It appears moreover, that the average income and the average expenditures of this class approximately balance each other, whereas in the two classes standing lower in the scale there is a deficit of income below expenditures, and in the two classes standing higher in the scale a surplus of income over expenditures, according to the tabulated returns. This fact indicates that the income first becomes adequate to meet expenditures when this wage group is reached."

The Gospel of the Kingdom; Studies in Social Reform and What to Do.

American Institute of Social Service. Bible House, Astor Place, New York.

Under this general title, a series of weekly lessons is being published for use in Sunday schools. The lessons are prepared under the editorship of Dr. Josiah Strong with the assistance of a national committee which includes such well known names as Dean George Hodges, Graham Taylor, and Bishop Greer. Half of the subjects announced for the year 1912 are concerned directly with the field of Home Economics. For the second quarter, the topic is Woman and the Community, with the sub-topics of Woman in the Home, Woman in Industry, and Woman's Public Activities; for the third quarter the Home and The Family, with the sub-topics, Homes or Tenements, Marriage and Divorce, and Parents and Children. During 1911 the subjects of study have included The Church and Social Purity, Immigration, The Church and the Workingman, and Dangerous and Unsanitary Occupations and Conditions. The lessons cost 50 cents a year and seem to be a wise form of study for adult classes.—B. R. ANDREWS.

List of State Directors of Farmers' Institutes and Farmers' Institute Lecturers of the United States. U. S. Depart. of Agri. Office of Experiment Stations, *cir.* 114.

This list will give club women and extension workers information regarding some available speakers in Home Economics.

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Home, Institution, School

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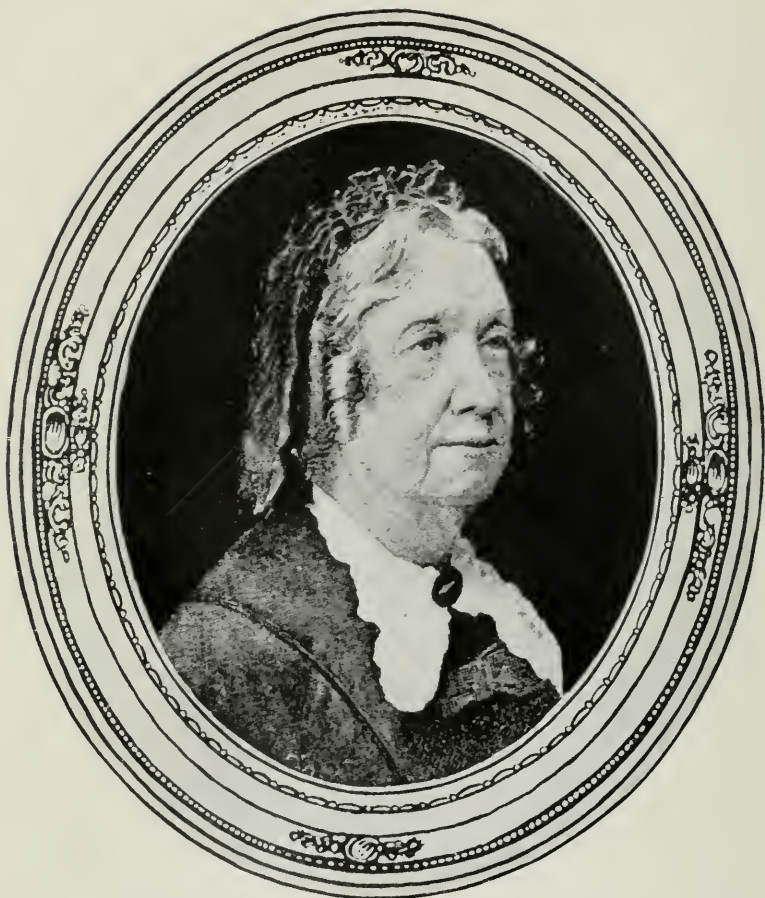
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Catherine E. Beecher, 1800-1878.
Author of *A Treatise on Domestic Economy*.

T H E

Journal *of* Home Economics

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MISS CATHERINE E. BEECHER, THE PIONEER IN HOME ECONOMICS.

BENJAMIN R. ANDREWS, PH.D.

Teachers College, Columbia University.

Among the founders of the Home Economics movement in America, Miss Catherine E. Beecher is to be accorded first place. During the years from 1830 to 1875, she did for American education a work that may be properly compared to the services of Ellen H. Richards in the following generation. Miss Beecher was the eldest of the famous Beecher family, which included the father, Lyman Beecher, a leading American clergyman and President of the Lane Theological Seminary at Cincinnati; Catherine Beecher, the subject of this sketch; Harriet Beecher Stowe; and six brothers who were ministers, including Henry Ward Beecher and Thomas K. Beecher.

Miss Catherine Beecher (1800-1878) was born at East Hampton, Long Island. We first know of her, however, in any public way, in connection with her school for girls which she established at Hartford, Conn., about 1822, and conducted there for ten years. This school seems to have been perhaps the best school of its day, with an advanced curriculum semi-collegiate in nature, including advanced instruction in Latin, mathematics, and other subjects. For this school and other schools like it, Miss Beecher wrote text-books in arithmetic, ethics, and physiology. A nervous breakdown compelled her to give up the school about 1832 and she then made her home in Cincinnati, where she was associated with her sister, Harriet Beecher, who had opened a school in that city. After some years, this school was given up and Miss Beecher's later life was devoted to public movements educational in nature, and to writing and lecturing.

A study of her books and of the movements in which she was engaged shows several definite centers of activity in her life. She was interested in the general education of girls. Her own schools at Hartford and Cincinnati were one indication of this interest, as were her text books. She thought of education as a great agency for national development, and so she was satisfied with nothing less than plans for national improvement. The broad scope of her thought is indicated by her essay of 1835 on *The Education of Female Teachers*, which had for its central thought the idea that women would find in teaching a profession to which their hand would turn naturally, and that the country was suffering from the lack of service of the sort which women teachers could give. This same idea is expressed even more vigorously in her address of 1846 entitled, *The Evils Suffered by American Women and American Children; the Causes and the Remedy*, and had led meantime to the organization of a national movement for the training of women teachers and to the establishment of public and private schools throughout the country in which they might serve.

It was at this time that she organized the Central Committee for Promoting National Education and secured the coöperation of a large number of people throughout the country, obtained the services of former-Governor Slade of Vermont as secretary and field-agent of the Committee, and initiated activities which resulted in the placing of one thousand women teachers in as many different centers, largely throughout the West. Interested as she was in the welfare of the country and the welfare of women, she grasped the fundamental fact that the home is the social institution through which woman's work for society must largely be done; so one finds from the first that she paid the greatest regard to the training of girls in the interests and activities of the household. This was evident in the schools which she conducted and in the reference in the address of 1835 on the education of women teachers. In this she urges that household arts should be included as a subject of instruction in girls' schools, although she had not yet organized the subject-matter in this field as she did six years later, in her *Treatise on Domestic Economy* published in 1841. This book, which is the one most commonly associated with Miss Beecher's name, is the first modern book treating of the household in a large way, fully conscious of its importance as a social institution, fully aware of the great interests centered in it, and of the primary fact that women must be trained in the practical matters of food, household management, care of children, and all standards of home life and com-

munity life, if the home is to fulfill its high possibilities. The *Treatise* was followed a year later by the *Domestic Receipt Book*, a handbook of recipes and procedures. We shall speak of the *Treatise* more in detail.

The address of 1846 on the *Evils Suffered by Women and Children* is a striking statement of the conditions of illiteracy and ignorance which prevailed in the United States at that time, the low condition of the public schools, and the possibilities inherent in the profession of teaching, especially if women will recognize it as a calling for which they are particularly adapted and for which it would be possible to make preparation as thorough and as dignified as that which prepares for other professions. The address is important from the Home Economics point of view, in that domestic economy is now urged as an essential element in the education of girls. The writing of the *Treatise* and the *Domestic Receipt Book* had made clear to Miss Beecher the fact that household management could be organized as a subject of instruction and made available for the training of young women.

In 1852 Miss Beecher organized the American Woman's Education Association, the first organization of women, so far as the writer knows, directed toward the improvement of education. This association seems to have remained active for twenty years at least, and to have done important service in preparing the way for the professional training of young women in domestic economy.

Meanwhile, Miss Beecher herself was still writing. In 1855 her *Letters to the People on Health and Happiness* was published and in 1856 appeared a *Physiology and Calisthenics for Schools and Families*. From 1869 to 1874 Miss Beecher was again actively engaged in compiling and publishing material on domestic economy. *The American Woman's Home* by Miss Beecher and her sister, Harriet Beecher Stowe, appeared in 1869. It is really a revised and enlarged edition of the *Treatise*. Other titles appeared in the succeeding five years. *The Principles of Domestic Economy*, *Principles of Domestic Science*, and Miss Beecher's *House-Keeper and Health-Keeper*, all published in 1873, were, perhaps, revisions and enlargements of the materials which were first brought together in 1841. There is in these books and the earlier writings a rich field for the student of the Home Economics movement. We may speak somewhat in detail of two of Miss Beecher's writings: The essay of 1835, and the *Treatise on Domestic Economy*, and of the American Woman's Education Association, particularly in their relation to Home Economics.

AN ESSAY ON THE EDUCATION OF FEMALE TEACHERS (1835).

Miss Beecher's views of woman's usual work in the home and the preparation needed for it come out in the essay of 1835, although its main point was to urge the need of training women as teachers. Teaching, in her mind, was to be the preface to home life; and was the best preparation for it, as these quotations show:

Another object to be aimed at in regard to female education is to introduce into schools such a course of intellectual and moral discipline, and such attention to mental and personal habits, as shall have a decided influence in fitting a woman for her peculiar duties. What is the most important and peculiar duty of the female sex? It is the physical, intellectual, and moral education of children. It is the care of the health and the formation of the character of the future citizen of this great nation.

Woman, whatever are her relations in life, is necessarily the guardian of the nursery, the companion of childhood, and the constant model of imitation; . . . And what demands such discretion, such energy, such patience, such tenderness, love, and wisdom, such perspicacity to discern, such versatility to modify, such efficiency to execute, such firmness to persevere, as the government and education of all the various characters and tempers that meet in the nursery and school room? Woman also is the presiding genius who must regulate all those thousand minutiae of domestic business, that demand habits of industry, order, neatness, punctuality, and constant care. And it is for such varied duties that woman is to be trained.

Speaking of the training necessary for woman, Miss Beecher says:

The mere committing to memory of the facts contained in books is but a small portion of education. Certain portions of time should be devoted to fitting a woman for her practical duties; such for example, as needlework. Other pursuits are designed for cultivation of certain mental faculties; others to cultivate taste and imagination; some to form the moral and religious nature; others to store the mind with knowledge.

So in this early sketch of education Home Economics finds a place as a subject of practical instruction.

THE TREATISE ON DOMESTIC ECONOMY.

The *Treatise on Domestic Economy* may be characterized as the first text-book in Home Economics. Books of recipes had often been compiled at earlier times, but here is a treatment of the household which distinctly sets aside the directions and recipes for a separate book, and endeavors to discuss the home and the management of the household from a theoretical point of view. One finds practical procedures in the *Treatise*, it is true, but all in a setting of general principles.

There is in it something of the largeness of view and breadth of understanding which makes the *Economicus* of Xenophon a book for all time. The *Domestic Economy*, in brief, is a classic. There is surely this quality in the well-known quotation from the preface to the third edition:

The author of this work was led to attempt it, by discovering, in her extensive travels, the deplorable sufferings of multitudes of young wives and mothers, from the combined influence of poor health, poor domestics, and a defective domestic education.

The measure which, more than any other, would tend to remedy this evil, would be to place domestic economy on an equality with the other sciences in female schools. This should be done because it can be properly and systematically taught (not practically, but as a science), as much so as political economy or moral science, or any other branch of study; because it embraces knowledge, which will be needed by young women at all times and in all places; because this science can never be properly taught until it is made a branch of learning; and because this method will secure a dignity and importance in the estimation of young girls, which can never be accorded while they perceive their teachers and parents practically attaching more value to every other department of science than this. When young ladies are taught the construction of their own bodies, and all the causes in domestic life which tend to weaken the constitution; when they are taught rightly to appreciate and learn the most convenient and economical modes of performing all family duties, and of employing time and money; and when they perceive the true estimate accorded to these things by teachers and friends, the grand cause of this evil will be removed. Women will be trained to secure, as of first importance, a strong and healthy constitution, and all those rules of thrift and economy that will make domestic duty easy and pleasant.

The author wishes also to make plain the fact of her fitness for the work which she undertakes. She mentions her qualifications as "being the eldest of a large family, she has, from early life, been accustomed to the care of children and to the performance of most domestic duties. It has also been her good fortune to reside, most of her life, in the families of exemplary and accomplished housekeepers, and under the supervision of such friends, most of the domestic operations, detailed in this work, have been performed by the writer."

One can get the best view, perhaps, of the scope of the book by the list of chapter headings: Peculiar responsibilities of American women; difficulties peculiar to American women; remedies for the preceding difficulties; on domestic economy as a branch of study; on the care of health; on healthful food; on healthful drinks; on clothing; on cleanliness; on early rising; on domestic exercise; on domestic manners; on the preservation of a good temper in a housekeeper; on habits of sys-

tem and order; on giving in charity; on economy of time and expenses; on health of mind; on the care of domestics; on the care of infants; on the management of young children; on the care of the sick; on accidents and antidotes; on domestic amusements and social duties; on the construction of houses; on fires and lights; on washing; on starching, ironing, and cleansing; on whitening, cleansing, and dyeing; on the care of parlors; on the care of breakfast and dining rooms; on the care of chambers and bedrooms; on the care of the kitchen, cellar, and storeroom; on sewing, cutting, and mending; on the care of yards and gardens; on the propagation of plants; on the cultivation of a fruit; miscellaneous.

Space does not permit of course detailed quotations from the different sections of the work. Something of typical chapters however may be offered.

The *Domestic Economy* opens with an argument as to woman's place and work in the social order. The American nation is demonstrating the principles of democracy to the world, and woman as teacher and as home-manager has a share in this work in nowise second to that of man. This was the splendid world-view to encourage and inspire the home-woman.

Miss Beecher holds to an equality of man and woman which means that "in theory and practice women's interests are regarded as of equal value . . . though women are made subordinate in station. . . . In civil and political affairs, American women take no interest or concern; . . . In education, in the selection and support of a clergyman, in benevolent enterprises, and in all matters relating to morals or manners they have a superior influence." The success of a democracy "depends upon the intellectual and moral character of the people;" and this turns upon education. The "proper education of a man decides the welfare of an individual; but educate a woman and the interests of a whole family are secured."

We have then this view of "the peculiar responsibilities of American women" (Chapter I) that, in a republic, education and the home are the fundamental influences. But "difficulties peculiar to American women" (Chapter II) arise through the social situation in a pioneer country, in which at the West life was especially hard upon women, while at the East European influences were beginning to be felt. There is the emulation of the wealthy along with the absence of any special servant class. On the other hand, American women seem to suffer from delicacy of constitution, through the lack of proper exercise and

physical care, and through the burden of housekeeping due to the lack of any particular preparation for it.

As "remedies for these conditions" (Chapter III), Miss Beecher has the following suggestions: She urges that the physical and domestic education of daughters should occupy the principal attention of mothers, and less time should be given to school and more to domestic employments, especially in the wealthier classes; that the science and practice of domestic economy should be made a regular study in girls' schools; and finally that institutions for the training of girls should be suitably endowed under permanent boards of trustees, with proper courses of study. In regard to the last point, it may be recalled that Mary Lyon's campaign for an endowed institution in Massachusetts had resulted in the opening of Mount Holyoke Seminary four years earlier, although Miss Beecher seems to share with her the credit for the idea that higher schools for women could succeed permanently only if endowed.

The chapter on Domestic Economy as a Branch of Study is a sound argument for Home Economics in education, which is still fresh and applicable.

There is no period in a young lady's life when she will not find such knowledge useful to herself and others. . . . Every young lady at the close of her school days, and even before they are closed, is liable to be placed in a situation where she will need to do, herself, or to teach others to do, all the various processes and duties detailed in this work. . . . As a general fact, young ladies will not be taught these things in any other way. Mothers will not teach them for they are not themselves qualified to teach a proper and complete system of domestic economy. The objection that such matters cannot be taught by books will not hold, nor, granting that such studies may be pursued in books, may we be satisfied with the reading of such books rather than courses of instruction. . . . Another reason for introducing such a branch of study into female schools is the influence it would exert in leading young ladies more correctly to estimate the importance and dignity of domestic knowledge. It is now often the case that young ladies rather pride themselves on their ignorance of such subjects; and seem to imagine that it is vulgar and ungenteel to know how to work. . . . And let the young women of this nation find that domestic economy is placed in schools on equal or superior grounds to chemistry, philosophy, and mathematics, and they will blush to be found ignorant of its first principles, as much as they will to hesitate respecting the laws of gravity or the composition of the atmosphere. But, as matters are now conducted, many young ladies know how to make oxygen and hydrogen and to discuss questions of philosophy or political economy far better than they know how to make a bed and sweep a room properly; and they can "construct a diagram" in geometry with far more skill than they can make the simplest article of feminine dress.

Chapters follow on the care of health, presenting a basis in physiological knowledge for proper food, drink, clothing, and personal habits. The chapter on clothing raises a question of today in stating that infant mortality is a great problem owing to mismanagement in fresh air, food, and clothing. In old books, one is always tempted to quote those things which seem out of touch with present day ideas and customs and so Miss Beecher's chapters on Early Rising, and Preservation of a Good Temper in a Housewife, have often been referred to. Her treatment of early rising is especially interesting as it brings to bear arguments in social economy and national wealth in support of the practice which one may assume was going out of fashion in her day with the growth of town life. The chapter on Good Temper really merits quotation. The importance of its general relation to the household situation, and the practical means of effecting it, both come in for due attention. The argument contains thoughts that are still useful. There is sound psychology in the statement that a woman, who has charge of a large household,

should regard her duties as dignified, important, and difficult. The mind is so made, as to be elevated and cheered by a sense of far-reaching influence and usefulness. . . . A housekeeper should feel that she really has great difficulties to meet and overcome. . . . A third method is for a woman to deliberately calculate on having her best arranged plans interfered with; and to be in such a state of preparation that the evil will not come unawares. . . . Form all plans and arrangements in consistency with the means at hand, and the character of those around . . . System, economy and neatness are valuable only so far as they tend to promote the comfort and well-being of those affected.

Among the most valuable discussions are the chapters on System and Order, and Economy of Time and Expense. They show that our modern ideas of efficiency in business and scientific management had occurred to the mind of this remarkable woman. The chapter on Giving in Charity is in some ways a prophecy of our modern organization of philanthropy. An interesting section in it is Miss Beecher's reference to household accounts, and her suggestions as to a budget. We should divide household accounts, she thinks, into three general heads: First, food, clothing, and all necessary expenses of living; second, expenditures paid for education, books, and other intellectual advantages; third, expenditures for benevolence and religion. She then offers the very suggestive rule that it is right to add to necessary expenditures a further "portion of time and means in securing the conveniences and adornments of taste; but this amount should never exceed what is

spent in securing our own moral and intellectual improvement, nor exceed what is spent in benevolent efforts to supply the physical and moral wants of our fellow-men." In other words, do not let mere refinements in living outweigh personal improvements and culture, nor this again exceed social-welfare expenditures.

It would be interesting to quote further. While we must dismiss the *Domestic Economy* with these quotations, we may recall the fact that it went through edition after edition both in New York and Boston, was adopted soon after its first appearance into the Massachusetts School Library, and through a generation proved itself the most useful of books on the household until it was supplanted by the revision of 1869, *The American Woman's Home or Principles of Domestic Science*, and other volumes from the same author.

AMERICAN WOMEN'S EDUCATION ASSOCIATION.

This first educational association of American women will be interesting to students of Home Economics, for it was, in a sense a forerunner of the American Home Economics Association. Established about 1852, its aim was no less than the establishment of professional schools to be affiliated with literary institutes in which young women might be trained in Domestic Economy, Teaching, and Physical Training, the "three aspects of woman's profession." Here was proposed the idea of our technical colleges for women of today. Though the effort did not succeed, it doubtless laid foundations on which the college departments of domestic science in the state colleges of the middle West were unconsciously laid in the seventies and which contributed to all the growth of Home Economics in the last forty years. Miss Beecher's statement in 1855,¹ in the *Letters to the People on Health and Happiness*, is as follows:

The name of this organization is the American Woman's Educational Association. Its object, as stated in its constitution, is "to aid in securing to American women a liberal education, honorable position, and remunerative employment in their appropriate profession; the distinctive profession of woman being considered as embracing the training of the human mind, the care of the human body in infancy and sickness, and the conservation of the family state."

The leading measure to be pursued by the association is the establishment of permanent endowed institutions for women; the "endowments" being employed "to furnish the salaries of three superior teachers in each institution, who shall take charge of the three departments set forth as constituting the profession of woman."

¹ See *Letters to the People on Health and Happiness*, by Catherine E. Beecher, New York, 1855. Also, the *American Woman's Home*, 1870. (Appendix.)

The mode in which this effort has been carried out has been to seek the coöperation of a large town or city in founding such an institution, by the offer, on the part of the association, of a library and apparatus, and a permanent endowment of twenty thousand dollars for the above purpose, on condition that the citizens erect a suitable building, and insure an income from tuition fees that will support four teachers for the literary departments.

This offer was made to the citizens of Milwaukee, Wisconsin, and of Dubuque, Iowa. The result has been the erection, in each of these cities, of a large and beautiful edifice for such an institution. In Milwaukee about two hundred pupils, and in Dubuque nearly one hundred, are in a course of study in the institutions thus established.

It is now the object of the association to organize the three departments in these institutions, which are to be sustained by endowment, and which aim to qualify woman for her distinctive duties. These are, first, the normal department, where the pupils are to be trained to act as educators; next, the health department, where they are to be trained to be perfectly healthy themselves, and to undertake all that appertains to the care of infancy and of family health; and, lastly, the domestic department, where they are to be trained to understand and perform all the processes of domestic economy.

In 1870, Miss Beecher wrote in the *American Woman's Home* that the American Woman's Education Association aimed to

Establish endowed professional schools, in connection with literary institutions, in which woman's profession should be honored and taught as are the professions of men and where woman should be trained for some self-supporting business. From that effort several institutions of a high literary character have come into existence at the West, but the organization and endowment of the professional schools is still incomplete from many combining impediments, the chief being a want of appreciation of woman's profession and of the science and training which its high and sacred duties require.

Especially striking was the plan outlined for "practice houses" or house laboratories, in connection with the domestic economy departments in the projected professional schools. Miss Beecher describes the plan in the *Educational Reminiscences and Suggestions of 1874* (pp. 158-159). It incorporates an idea which our college departments of Home Economics are now eagerly championing as the next step to-day in methods of instruction, although this quotation shows it was incorporated in the program of the Woman's Education Association half a century ago.

The principals of the domestic department would have the charge of all relating to the aesthetic, social, and domestic, and teach both the science and practice of domestic economy. They would by lectures and books instruct in the fine arts, and superintend classes in needle work and the cutting and fitting, cleansing, and mending of clothing. The supervision of the school and family building would

belong to this department. Each of these departments would be provided with model dwelling houses, illustrating proper and tasteful modes of construction, furniture, ornamentation, warming, and ventilation. The family in each dwelling would consist of the principal, associate principal, and ten pupils, and they would do all family work. A circulating system would employ every member of the family one or two hours daily, in such rotation that in a given time each one will have been instructed in, and will perform, every operation included in family life. When each pupil is thus trained, she will give place to another of the scholars and each would remain a longer or a shorter time according to proficiency acquired at "school or at home."

LIST OF BOOKS BY CATHERINE E. BEECHER.

Suggestions on Education (about 1830).

Elements of Mental and Moral Philosophy, Founded on Experience, Reason, and the Bible. (Anonymous.) Hartford, 1831.

The Lyceum Arithmetic: In Three Parts, Each Adapted to Different Ages and Classes. Boston, 1835, pp. 248.

An Essay on the Education of Female Teachers. Van Nostrand and Dwight, 1835, pp. 22.

Letters on the Difficulties of Religion. Hartford, 1836, pp. 350.

Essay on Slavery and Abolitionism with Reference to the Duty of American Females. Philadelphia: H. Perkins, 1837, pp. 151, 2d ed.

A Treatise on Domestic Economy, for the Use of Young Ladies at Home and at School. Boston, 1841. Illus. Plans. Revised with additions, 1842. New York Editions—1842, 1843, 1847, 1849, 1852, 1854, 1867. (Copies in Boston Public Library.) Other editions 1845, 1847, 1855.

Miss Beecher's Domestic Receipt Book, Designed as a Supplement to her Treatise on Domestic Economy. New York, 5th Edition, 1846. First edition, 1842 (?); other editions to 1867 in Boston Public Library.

The Duty of American Women to Their Country. New York, Harper and Brothers, 1845, pp. 164. (New York Public Library.)

American Women: Will You Save Your Country? Published anonymously, 1845.

The Evils Suffered by American Women and American Children: The Causes and the Remedy. Harper and Brothers, 1846, pp. 36.

Truth Stronger than Fiction. New York, 1850.

The True Remedy for the Wrongs of Women. 1851.

Letters to the People on Health and Happiness. New York, 1855. (New York Public Library.)

Physiology and Calisthenics for Schools and Families. Harper and Brothers, 1856, pp. 58.

Common Sense Applied to Religion. 1857.

The American Woman's Home; or Principles of Domestic Science. Catherine E. Beecher and Harriet Beecher Stowe. New York, 1869.

Women's Profession as Mother and Educator with Views in Opposition to Women's Suffrage. 1871.

The New Housekeeper's Manual, Embracing a Revised Edition of the American Woman's Home. Catherine E. Beecher and Harriet Beecher Stowe; together with The Handy Cook Book, by Catherine E. Beecher. New York, 1873, Illus.

Principles of Domestic Economy. By Catherine E. Beecher and Harriet Beecher Stowe. New York, 1873.

Principles of Domestic Science as Applied to the Duties and Pleasures of Home. New York, 1873, pp. 380. (Copy in New York State Library.)

Miss Beecher's Housekeeper and Healthkeeper: Containing 500 Recipes for Economical and Healthful Cookery. New York, 1873. Also, 1874, pp. 482. (Boston Public Library). Also published in England.

Educational Reminiscences and Suggestions. New York: J. B. Ford and Company, 1874, pp. 276. (New York Public Library.)

EDUCATIONAL SUGGESTIONS FROM EUROPEAN LIFE.

EDITH GREER.

Down the ages have come facts and acts informing to all, also power humanly forming. Europe, in an older setting that has endured for centuries, impresses the accomplishment of time more strikingly than do newer environments. Yet the transmigration of human life from other ages and now for America from other nations, is of deep human significance. It teems with educational opportunities, invigorating, suggestive.

The wealth of the past rests not alone in far-famed but distant achievements. It affects somewhat directly the humanity at home in foreign lands. This is disclosed there by those that have followed in time and place. The minor arts are carried in people rather than rest simply in things. Those arts of former days in union with the productive power of earlier peoples, flourish where they arose, often only as incidents in living when no longer living—occupations, the experience in living too rooted as it is, in the past but passing, as it has, into fineness of skill in many European countries, lies open to view to those whom life teaches.

America sees in incoming peoples problems of nation-construction and possibilities of industrial production. "Whose hands if not ours," a foreigner has asked, "are doing the inevitable manual work in the making of America as it now presses forward in material construction, transportation, and industrial productivity?" But America does not avail itself of the accomplishments preserved in the foreigners in her midst nor of the training they have brought which is so fraught with rich resource.

Every child in Europe knits and crochets as do also the working women in their idle hours. All sing and with a musical expressive-

ness unrealized save by peoples of inherited musical sensibility. And who in Europe can be found that cannot cook in superior fashion? Those are but the accomplishments of simple necessary human living through ages of daily life at home.

Nor are these all the powers that come. The fineness of ages of skilled handicraft arrives unseen in the unrecognized silversmith of appreciative power and love for the work left, not to be readily refound. There comes, too, the worker in coarser materials who fashions beauty into simple, useful things that if seen would be sincerely desired.

And is it the wealth of chivalrous tradition which gives the dignity and gentle courtesy that seems to have been bred through centuries of customs suited to peace-giving climes? This rests now as a gift with many to whom fortune seems to have denied much else but not all. A clear mental directness in exigencies of hampered intercourse ever and anon discloses a training of school or life which in itself challenges interest and promises power but often shortly is not to be seen.

Those that are even looked after, are not, in the haste and perplexity over concerns of daily-living, invariably looked at to see what they have in accomplishment, what they are in training, and what they can do through transmitted ability or impress of earlier environment, which America as yet cannot. America often perhaps does not know that what is brought, exists. Those that bring much are frequently not able unreinforced to initiate their power, to adapt it and use it purposefully under changed conditions of life which disguise even the demand there may be for such products or services. Expression thus denied them, they may even bury their inherited strength, regarding it unwelcome because unwelcomed. Not a few that might so enrich life and add charm to living, turn to unskilled labor as it offers, because they must sustain life.

A sign of awakening is seen in the civic vocational bureaus that are now arising to care for the person not less than the product, and beginning to study human possibilities on the background of economic problems. Moulding life to use all the human powers that are, rests with education.

European employment of age in positions of dignity and responsibility, also of women in governing positions with final authority where their experience has qualified them for intelligent service, and the frictionless, flawless corporate action of a group of workers, as in the service of a house as a whole, where everything is seen and what is seen, is done—illustrate human possibilities that American democracy has yet to realize.

The general tendency here, of somewhat unintelligent overvaluation of interested youth, is in danger of resulting in formless activity in the service of no clearly conceived lofty purposes. This, if continued, can but lead, it is believed, to a spoilation of youth which will foster immature unfitness for progressive active responsibility and deplete the ranks of those that should grow wise through the experience that brings mature judgment with mature years.

Youth has promise, but this unfulfilled, it bears fruit in disappointment. One sees childhood with its charm pass with regret, but were it not to pass the regret could but deepen. Growth is the fundamental fact of life and the difference that distinguishes it from all else. This, nations attest which do not suffer arrested development but pass to mature age, of which youth is but the beginning, more than the poets know. Age lost from life, what is not gone? The fineness of youth is its promise, energy, strength. The fineness of maturity is achieving—poise, wisdom. It is not the age that is behind; it is rather the age that is before youth which should direct youth in its effort. It is the ideal that draws onward. The classic but impresses what should not be lost in the forward movement.

Exhausting the worker in early maturity through overmechanical labor, leaving youth undeveloped through overvaluation, overlooking or underseeking the gifts and resources there are, but paves the way for human destitution. Only constructive education, in union with humanized occupation, can avert this.

In the older civilizations, there is more serenity and peace in life as it is lived. There is also appearance of more harmony in domestic and industrial life between belief as expressed and practice as seen, whatever the undercurrents of unrest or suppressed struggle. More of the life of the person is in the living, the daily human living and the occupational living. Everything is not as it is because trade requires that it be. Not infrequently the worker says what he regards the worth of his work. His word stands, though beside his product may stand that of a companion-worker valued far otherwise. The one that wishes the work of both pays in accord with the ideas of each. Is that independence in industry? It was found in union with excellence of workmanship. The small shop with products of its own production, now re-arising in America, one notes with enquiring interest, are foreign in origin.

Here more conflicting aims and efforts stir life and not without somewhat confusing living. America is machine clothed and is becoming

increasingly factory-fed. On the one hand she sits on prison-contract chairs in syndicate built apartments, agent-managed, and on the other is environing her life with nature again as a background, creative expressiveness the builder of home, and appreciative, effective intelligence, enlisted in the management of living as it affects human life. Both are. Education will largely determine what is to be.

High inventive capacity none deny to America. But its ingenuity is more commonly used to attract attention commercially than with real human purpose. In Europe interest seems to center in human service. Europe's doors open, its windows close, its locks turn, its shutters latch, its elevators are open and serviceable. The floors of Switzerland and France reflect their housekeeping ideals. The windows of Holland gleam everywhere within its borders on all days and in all weathers. Here there is the will to do; there the will to do well. Interest in work, self-respect in one's occupation, and good results from activity are to be commonly observed everywhere even when the day is divided between cleaning the floors and the silver. What is to be done, is to be well done, housekeeping attests.

Cookery in Europe is better than ours in general combination and variety, also in service. More interest and more intelligence as to food is expressed in its preparation and use. Gardens at hand give freshness to food and naturalness that is lost when all seasons appear alike in production. Everything, from everywhere at all times, promises and provides for variety but also permits continuous close adherence to restricted taste that blunts appetite. It also noticeably results in the practice of selecting, where it can always be found, what minimizes preparation regardless of the dietetic result; if not health-effect. Europe is in practical living nearer to Nature and less apparently fearful of the effort that living requires everywhere of someone.

All Europe also sews well. It conceives clearly of basic construction and is skilled in technique. As it fashions its garments it sees them as art in attire. It is to those garments that are permanent in service that there clings much of the handwork of the past, rich in design expressive of tradition and wrought with hand-cunning too little utilized, if not lost. To the foreigner, the embroidered costume is unseen and may become unvalued because unused. That it has passed from the daily wear of those that toil to the adornment of those that do not, is not fully realized, even if known.

It is the museums, holding what was, which display the things of the life known in other lands. And an impressive lesson it is for the

American to see the treasure houses that store past and passing beauty, thronged on holidays, or fully to appreciate its living significance to those that, though aliens to the land, are wonted to the environment of beauty; as what foreigner is not?

Italy brings to whatever it does, beauty and perfection of workmanship. Its work is deeply informing and singularly satisfying. That of France is good but has not the unswerving practical faithfulness to ideals unaffected by commerce which Italy manifests. The wonder of environment and warmth of human life makes Italy a land of inspiration. Voltaire praising France said, "But none can claim to excel Italy, she has all kinds of gifts to the degree of genius." One realizes with Henry James that "Italy is like an old book; the charm is in the style." It is a land in which by "a noble disregard of the cost of material in the hands of artists, palaces, courts and cities have been created which disclose what can be." Basements and backyards take on new forms in the mind that Italy has equipped to see possibilities. These become two opportunities for beauty to express itself in home and civic life, rather than necessary blights to sight and imagination.

Switzerland serves its 300,000 annual tourist-guests as only Swiss management can and is not disturbed in its domestic or national life. It works with the free play of intelligence which knows no drudgery.

The National Educational Exhibit installed at Berne is, in many respects, a unique portrayal of the educational interests of the nation, the practical phases of its life, such as sewing that living requires be done. This has an integral relation to its education. The pupil-products bear witness to the hand-skill of the nation. Switzerland carries such training with that of the regular school instead of segregating it in special schools as Europe generally does.

The Swiss have unsurpassed ability to train. The current teaching and supervising of servants in their service may be observed without anxiety as to the outcome. The evolution of a waitress, the preparation of a gardener, are characterized by thorough grasp of the work as a whole, mental precision in reaction, kindliness in attitude.

Swiss impress upon international life is more real than is always evident. It does more that is significant to others than care for them as they pass its door. Much of the silk machinery of the world is made there and more and more lovely silk than one is aware, unless seen there. Many of the rarely beautiful semi-precious stones are finding their way into simple, charming form in Swiss hands and passing to a graceful use in costume and minor decoration. The watch-

maker's museum in Geneva displays a craft-power not lost nor forgotten nor unused by the Swiss of today. Their interest in science as it affects life in union with their trained industry and quiet energy of life, with its incorporation of living in education, promises the Swiss an educational effectiveness that springs from intelligent interest in life and returns to direct living progressively.

Throughout Europe special schools are arising to train very practically for commercial, industrial, domestic life. Their activities and methods are practical but their curricula are not so denuded as to restrict signally the human development of the pupil. They include the general work of the traditional school integrated with the practical though apart from their regular school. Their study of language is sometimes even more elastic, as it too is regarded as a probable part of the working equipment required in any occupation that may carry the worker into the current of the heterogeneous life of Europe.

The shops of Italy, seasonal exhibits, and fairs place on sale the hand-work of such schools and of the training centers that afford the older women the opportunity to work as their time permits. The work and the workers may be seen and known together. Weaving, embroidery, lace, sewing in all forms, and basketry, are the usual products. These special schools of Italy in Rome, Florence, and Venice are interestingly informing and very accessible simply upon request at the school. The regular schools, however, require all formality.

Children, wherever they are and whoever they are, show much about the life whatever it is. The appreciation of nature of the Swiss child and its singing accompaniment of its outdoor living; the absorbed occupation of the serious, charming Italian child; the alert facility and astonishing obedience of the French child; indicate suggestively the home and school life of the several nations.

The European's comment that Americans are too intelligent to travel as they do, expresses a truth that needs practical consideration. One country seen at all thoughtfully, essentially opens others to view more quickly. If a teacher can travel but six weeks and cannot resist Europe as a whole, then four weeks somewhere and two everywhere, will be more constructive in effect than hurried travel for six. It will even be more generally informing.

Europe presents human life under varied forms that have been brought into interesting contrast through ages of close association yet segregated national living. Knowing life anywhere requires direct intercourse for human effect from it. Passing into touch with a people

and not simply through a country, anyone must ensure who would learn of life as it expresses itself in living.

The esthetic achievements of the ages have their value for humanity in its restful enjoyment of them, through which alone its appreciation grows. Though art must be seen to be realized, to see it, to have seen it, may add to one's information but is not essentially esthetic culture. Deepening pleasure in the presence of the beautiful alone gives this.

One hears and knows that America is not inartistic. Yet it cannot claim such an impress of beauty as not to be able to form itself, in many respects, with utter disregard of the fineness Europe has long presented to its view. An imposing civic square, ennobling and peace-giving to life as it moves through active days, is nowhere lacking save here. This is not always to be but one cannot but wonder how it came to be, since there has been no lack of expenditure here and no lack of illustration elsewhere. Responsive sensitiveness to beauty makes beauty an essential of national life, each nation in turn attests. When one builds at all he is forming the environment of all. Seeing with the leisure to enjoy, impresses the potency of the enjoyment and refines sensibilities that hurried passing but lays waste.

All are aware, that seeing all, anywhere, comes only through responsible living association, whereas travel is in essence irresponsible passing. But it has a service in being such. It enables one to overlook what in living might be overfelt. Alien problems and alien achievements light life differently. How life is lived; what is valued by others in living that differs, and the difference in solution of like life-problems, contribute suggestively to such education as would rest its purpose in effective living and appreciative human development through growth in intelligence.

Schools suited to a like accomplishment under different conditions and for differing social ideals of human advance are opportunities for study, rather copies for execution, if education and living are to have an interworking association, and intelligence and information not be considered apart from humanity in its progress in human living, where and when it is living.

America has known a lower school of German origin but claimed to be of universal application. However it has valued its gifts, it has struggled hard to free itself from being held fast in an environment of the past. Now an Italian school comes to view for little children. Will it be the loveliest of human environments, a court with reposeful

walls and playing fountain which will be brought into American Schools and life from it?

And for how many centuries has America known a Latin High school, to abandon it for what? Is it to be for a German adjustment to German industrial life and social conditions? Is America undergoing a complete educational revolution and from being German below and Latin above is to be Italian below and German above? Is America's intermediate school alone to be American? It is so in origin. It aims to be so in purpose. In it are currently 98 per cent of its children. What America's life will be, is there largely decided. What its living may become, can there be determined. Will it be human, artistic, scientific, intelligently effective throughout, that all humanity may be self-helpful and self-governed and self-cultivated?

THE ELEMENTARY WORK IN PREPARATION OF FOOD IN COLLEGE CLASSES.

The following is a partial report of the round table on elementary work in preparation of food in college classes, which constituted a part of the program of the meeting of the American Home Economics Association held in Washington, December 27-30, 1911. Owing to the illness of the original leader, Miss Abby L. Marlatt of the University of Wisconsin, Miss Isabel Bevier presided. She offered an explanation of the purpose of this round table, in part as follows:

A good many phases of work in Home Economics have not yet been "tried out." Considerable work has been done with food, less with clothing and dietetics. Some of us have done it in one way and some in another. So it has seemed worth while to consider in these two round tables on the science and art phases of Home Economics various methods that are in actual use by teachers. The particular question to be answered in this round table is, "What seems to you the best way to teach college women, who have had no previous school work with food, to cook?" It is understood that the discussion is limited to elementary work with food and that it may be designated in the college curriculum as laboratory work, experimental cookery, or preparation of food, but it is also understood that the world calls it cooking.

The first paper, which follows, was presented by Miss May B. Van Arsdale of Teachers College.

WORK IN TEACHERS COLLEGE CLASSES.

MAY B. VAN ARSDALE.

Since this paper embodies the conclusions drawn from several discussions among the faculty of the department of foods and cookery, Teachers College, I take pleasure in presenting it for the department.

In preparing the paper it has been assumed that this discussion was not intended to take the form of a plea for the introduction of courses in food preparation into colleges where such courses do not now form a part of the curriculum, but is intended to present the specific method now employed in certain institutions already giving courses in practical cookery.

So much for the meaning of the term "college classes" in our title. It will be well also for us to consider whether we are in agreement regarding the meaning of the term "elementary food preparation."

We understand the term "elementary" work to cover all courses which aim to develop a knowledge of the general underlying principles of cooking various food materials. By advanced work is not here meant simply the making of the more elaborate dishes where skill and an artistic result are the chief ends sought, neither do we refer to an investigation of certain problems which may be classed as research work. By advanced as distinguished from elementary work we mean all such courses as are formulated with a specialized end in view on the basis of a knowledge of the general principles of cookery—such as courses in home and invalid cookery, large quantity cookery for different types of institutions, cookery for infants and children, camp cookery, etc., all of which courses may be more effectively accomplished on the basis of the work in general principles.

Teachers College cannot be said to have any one method for teaching this elementary food preparation. The presentation of the subject matter is necessarily more or less adapted to the needs of the various types of students. In general, however, the method may be stated thus: The course called Household Arts 30—Elementary Food Preparation—is intended to introduce the student to a formal study of food preparation by systematizing the knowledge of cookery already possessed by the student—to develop reasons for processes already familiar, such reasons being drawn from practical experience and from courses in chemistry and in foods being pursued at the same time with the work in cookery. The fundamental principles are developed by a study of general proportions in combining food materials as well as from the study of a specific recipe in the endeavor to establish a rational basis for the later use of the more formal recipe in future work.

The next course makes the connection between the "reason why" and the actual cooking process more directly, being based upon the performance of experiments in physical science along with the study of a variety of recipes for the same product. The results of the various recipes are compared, the reasons for variations discussed in the light of experiments performed either in the cookery laboratory or in other courses being pursued at the same time, to discover the essentials and the non-essentials, the relative economy, or the comparative palatability.

In the more advanced work—that is, in the courses in home and institutional cookery, demonstration cookery, catering, and other courses with a more specialized aim in view, skill in combining materials and the production of a good result are the chief aims. Not too many failures are sacrificed to experimentation in this work, for the ability to adapt the knowledge already gained to the specific end sought is the avowed aim of this later work.

Perhaps all of the above may be best summed up in a statement volunteered by a professor outside the department in cookery whose familiarity with the work in cookery is gained chiefly through the students who pursue sequent courses under him. He says:

Cookery is taught at Teachers College by the same general method which has been found best in the teaching of analytical or experimental chemistry. The student is given directions which are made as suggestive as possible to provoke thought and to encourage individual experimentation, but which at the same time are sufficiently definite to prevent blind floundering and useless waste of time. "Skill and a good product" are sought (just as skill and an accurate result are sought in quantitative analysis) but not at the expense of a knowledge of the "reason why."

But any method of presentation fails to yield the very best results in practical cookery if the student is hampered through all her work by a deficiency in the technique of the subject; or if she has to mark time, as it were, in the cookery process to obtain this necessary knowledge. She is like a builder, endeavoring to construct a house before he is skilled in the use of the implements with which he builds.

We feel that in the future a course in the technology of the subject will be a desirable introduction to all work in practical cookery. Such a course will aim to produce skill in the mechanics of cookery, to familiarize the student with the general principles of science underlying the various processes, and to acquaint her with various types of stoves and fuels by a quantitative study of them. Such a course will aim to present to the students various mechanical devices used in the subject and to teach the adaptability of utensils to specific uses. It will lay special stress on the study of weights and measures (as well as on weights of measures) and thermometry. It will also aim to dignify the mechanics of the cookery processes like dish-washing and scouring. It will aim to acquaint the student with the appearance of food as purchased while emphasizing the economic aspect. We believe that a student thus equipped will be better able to concentrate on the food preparation itself when she takes up the practical cookery instead of being distracted by the mechanics of the subject, so that all along the

line better results may be yielded whether the student is to be a housekeeper, a teacher, or a specialist in any field.

For, after all, we are all striving to produce effective individuals and in so far as the work in elementary food preparation or in any other subject fails to be of advantage to the individual as an individual it fails to produce an efficient housekeeper or teacher.

Then followed a paper by Miss Catharine Mulligan of the University of Tennessee.

WORK IN THE UNIVERSITY OF TENNESSEE.

CATHARINE A. MULLIGAN.

The problem for the teacher in the South to solve is the same that meets the teachers in other parts of the country, but there are circumstances that make her problem a little bit different from the others.

Our grandmothers were familiar with all the details of household management; they trained any number of servants to perform the immense amount of work necessary to feed, clothe, and keep well and in working trim the large families in the "big house" and the "quarters," as well. These servants—our black Mammies and Uncle Romeos—are for the most part gone, and we are dealing in the South with a servant problem—not the immigrant, but a shifting, shiftless generation of children of a people who thought that freedom from slavery meant freedom from work, and whom educational leaders are training to work for themselves and not for the white people.

Now, since the household tasks have always been performed by negroes, the Home Economics teacher had at first to interest the school boards and the students in subjects entirely new to their thought and practice. There are no richly endowed colleges in the South, except a few negro schools, and school boards have to make a little go a long way. So, until recently, only normal and industrial schools have made room for domestic science and art, but now many high schools and colleges, and even a second university—Texas—has joined Tennessee in offering Home Economics courses for its women students.

With this demand, southern women have begun to prepare themselves to teach household science in our own part of the country, where we use buttermilk and soda to lighten our biscuit, where we eat gravy on our rice and hominy, and where we make corn-bread of *white* corn meal and without sugar.

The men at the University of Tennessee are required to take military drill during their first two years in college, and the women prepare for peace by filling those hours of their schedules with Home Economics—sewing in the Freshman year, and a beginner's course in cookery in the Sophomore year, where the chemistry begins. Those who wish may choose a second year of cookery from the open electives in the Junior year, and the Seniors may elect a term's work in house construction and household management, and a term in review of the whole subject of Home Economics, with reference to teaching it in high schools. We are hoping for the opportunity to do practice teaching under the supervision of the department of education.

Though the work was originally planned for girls who elect the courses as a part of their training for home life, yet students come to us in increasing numbers who expect to teach in high schools, in mountain mission schools, in orphanages, in settlements, in factory towns among mill operatives. In some of these places the position means being housekeeper and teacher both, and the only classes are groups of girls who have to prepare the three meals a day for the whole school.

The department at the university consists of two teachers and one student assistant, so the needs of all these students must be met in a very few classes. These classes meet for two laboratory periods and one recitation each week. They work from typewritten directions, which we add to and make changes in each year as conditions change. It seems a waste of time and material, too, for students to work without some guide, nor do they get any real practice from such small quantities as are printed in a recently published school text-book, where one tablespoonful of flour is the amount used in a cake.

Snyder's *Human Foods* is the text-book for our sophomores, and they begin with the practical work in cookery of starch—the cereals rice and hominy being the dishes most often found on our Southern menus. Usually the students work in groups of two, and three different recipes are prepared by the class of 14 or 16, so we have several duplicates of each recipe—quite enough to see that originality in the finished recipe is attained, even with the directions before the class.

The Sophomores progress from cereals to quick breads; then sugar; eggs, oysters, etc.; deep fat frying; with vegetables for their last spring work. Some study of serving of meals is made, and a simple meal served, cost estimated, and food value calculated by the 100-calorie portion table.

The Juniors use Sherman's *Chemistry of Food* as their text-book,

together with numerous references to other books, and to government publications. They count the cost of each lesson in materials used, time consumed, and gas used. Just now they are aiming to become more efficient by saving steps and motions, by coöperation in group work, and by planning ahead.

These classes began their practical work last fall with canning and preserving. Consulting their grocers, they found what fruits and vegetables they could profitably put up in the home and what would be economical to buy already canned. They judged their bread by the score card Miss Bevier has printed in her text-book. The meat lessons come next, and they are keenly interested in paper bag cookery, having experimented these last few days with steak pan-broiled, broiled under the flame, and cooked in the paper bags. As these Juniors meet me for the two hours preceding lunch, they will, after mid-term examinations, serve lunch for four persons, working in groups of two, till all have prepared a meal, calculating cost in time and materials, and estimating the nutritive value.

With the few hours at our disposal, there is yet in our colleges time for only a general course in Home Economics, leaving to the schools more heavily endowed the carrying on of research work along particular lines.

So far our students at the university have not stopped with the four years' work given there, but are continuing their studies in both summer and winter sessions and taking work at Columbia, at Simmons, and at other places as well.

The next paper was by Mrs. Mary Pierce Van Zile of the Kansas Agricultural College.

ELEMENTARY COOKERY.

MARY P. VAN ZILE.

At the present time relatively few students who are entering our colleges have had a chance to study cookery, consequently it is of importance that they have the opportunity of beginning this subject in college. It is therefore desirable for college courses in Home Economics to include a course in elementary cookery for all students who have not had the advantage of such training in secondary schools. For those who have had such training, a somewhat different method of procedure is necessary, and so long as the training of the students who

enter college is so widely different, the problem of adjusting the college work to suit the needs of the individual is not easy to solve. It necessitates offering courses for those who desire to begin the subject, and at the same time to offer suitable courses for those who had such training in the secondary schools. In this paper it is my purpose to outline the method and scope of the course for the student who is the beginner.

The course in elementary cookery should be a part of the Freshman year's work. The student enters college and enrolls in the Home Economics course expecting to have courses in cookery and oftentimes in sewing. If these are not offered her, but she is assigned to chemistry, physics, etc., she becomes discouraged. The elementary cookery course may be the means of holding her interest until such time as she learns to recognize in the science courses the necessary tools in the accomplishment of some definite purpose. I would by all means give her the science, but while she is taking it I would also offer the elementary course in cookery.

Many educators believe that the teaching of science can best be accomplished by presenting the subject in a concrete form and then making the analysis afterward. The elementary cookery course offers opportunity for such a development of the subject. The student's interest may be aroused in the cooking lesson—the understanding of the underlying principles will follow. If properly presented, the cooking lessons are the best preparation for the study of chemistry, of physics, or of botany, for the student very soon learns that these subjects are vitally connected with the real things of life. This course in colleges should take into consideration the maturity and broader general knowledge of the college student and therefore should be different from the high school course. The student should be required to proceed more rapidly, and to do things more thoroughly and intelligently.

Occasionally the argument is met that the college should not be required to teach the art of either cooking or sewing—that these things should be taught in the secondary schools. In theory the plan may be good, but in practice it is all wrong, for very few of the students who enter college will have had the practice. It is quite absurd to graduate a young woman from a Home Economics course who is not master of all the details of cooking. Therefore I believe the elementary course should give ample opportunity for the student to become familiar with cooking as an art. I would not, however, minimize the importance of good sound theoretical training. It is quite as necessary to develop

keen and accurate analysis of every subject considered, and the whys and wherefores should be made an important part of every lesson. It is the combination of the doing and the knowing that gives the ideal course.

The length of such a course must be determined by factors which are so local in character as to make it impracticable to discuss it at length here. It may be said that in general where the Home Economics work is offered, the course as a whole is based upon a certain division of the different phases of work—for example, approximately one-third of the student's time is given to the fundamental science work; one-third to the so-called cultural studies, English, history, German, French, etc.; and the remaining one-third to the technical work of the course. This technical work must include the sewing, cookery, and such drawing courses as are fundamental to the art and design courses which come later. At best the time that can be given to the elementary cookery course is limited. I have found that twenty-four lessons of two periods of sixty minutes each make a satisfactory course.

Whatever the length of time allowed, it is imperative that the course be well planned and logically developed. There is a justifiable difference of opinion as to the best order of development of the subject, but whatever the particular order of development adopted, it is imperative that every teacher be able to justify her method of procedure. The time is past when any course in cookery that is not carefully planned and logically developed can become a permanent factor in any college curriculum.

In teaching these elementary courses the teacher must be careful to remember the limitations and experiences of her pupils. For often the senior university viewpoint is the one the teacher has and as a result she fails as a teacher of the elementary courses. It requires skill to adapt her knowledge and to present it in a simple way. The teaching must be scientific—it must give knowledge of principles of cookery—it must inspire interest—and yet with all it must be so simple that every student will fully comprehend.

A few of the results to be attained by the elementary cookery course may be summarized as follows:

- (1) It encourages the idea that there is something worth while in performance of the daily tasks of life.

- (2) It furnishes an incentive for good work in other subjects of the curriculum.

- (3) It gives excellent training in construction work.

- (4) It gives knowledge of elementary science and lays foundations for more exhaustive scientific studies.
- (5) It is a fitting introduction to the more advanced food courses.

Miss Jenny H. Snow, University of Chicago, spoke in part as follows:

I will try to give you a little idea of what we as a department stand for. The study of food and its preparation go along hand in hand. There are three lectures and two laboratory periods a week. The object of the work is to make the girls as independent as possible, not only through a knowledge of the materials they are handling and of the effect of heat upon them, but of proportions and methods of combination that they have worked out as far as possible by experiments. This is the general line of work. The science work that has a direct bearing on the preparation of the food itself precedes the preparation of that food. The time devoted to this elementary work is two quarters of twelve weeks each. These courses are supposed to give the girls a general knowledge of all the elementary food preparation.

PRESIDENT BEVIER: Does this mean that these girls have never had work before, or do they come to you from the high school?

MISS SNOW: Most of them have not had work in the high school but many have had practical household experience. Next year we are planning a course that will take less time for the girls who have had some work in our own and other high schools.

Miss Agnes Hunt, Michigan Agricultural College, was asked to give her viewpoint and responded as follows:

The conditions that we have in Michigan are different, of course, from those in Illinois. We have for example, a group known as sub-freshmen, as do, I think a good many other institutions. In this course we try to present elements of cooking, pure and simple, and the practical handling of utensils and of food materials. All of our girls, however, do not come as sub-freshmen, and the sub-freshman class is gradually diminishing. We hope sometime to abolish it entirely, but at present we have these conditions to meet.

The college work in cooking comes in the Freshman and Sophomore years, and we change our point of view entirely from that in the sub-freshmen year. We take certain principles which we have borrowed from chemistry, from physics, from bacteriology, and by following certain recipes work out these principles. We start in with measurements and have more or less definite work on heat in one or two lessons

in order to determine something of the use of the thermometer. Then we take water as a carrier of flavors, later milk, following up with protein, taking milk as a sample form, then eggs and meat, and later carbohydrates.

You see our system of taking up food elements varies from some of the other work which has been presented here. I recall very vividly one of Dean Kinley's statements on what he called the "effective utility of foods." This he divided into four headings. Selection and preparation of foods was one of the factors which made up the absolute effective utility of foods. The next was the physiological value of food, that is its heat and energy giving value; the next its psychological value; and the last its aesthetic value. So we have others besides these purely scientific principles which we might have embodied in the selection and preparation and the physiological point of view; we have also tried to carry in mind aesthetic considerations. This seems a large field of work to cover in a few hours, but I think if one has these points in mind one can bring them out very effectively.

The plan for the elementary work in Pratt Institute was presented by Miss Ruth Atwater, as follows:

Our aim in the Junior cookery of which I am to speak particularly is to give the foundation material for the general cookery, both in theory and in practice. The time allowed is five periods a week, two laboratory periods of ninety minutes' duration, and one lecture period of forty-five minutes' duration. In the spring term the time is extended; it includes one laboratory class of four periods consecutively beside the ninety-minute laboratory class and the lecture. This extension of time is given to allow the students to put into practice during the winter term their work in serving.

In addition to the work in cookery there is a course in marketing and theoretical serving which occupies two periods a week. Then in the extension of time in the spring term the student is given an opportunity to prepare food in large quantities, and type meals are served for twenty people. We find that this is a great advantage to the students. They get experience in group work and in large-quantity cooking which develops judgment, facility in handling material, and adaptability under varying conditions. This we strive very earnestly to do in this first year's work.

Particular emphasis is placed in the Junior work on the theoretical side of the subject, and to this end the chemistry, which is advanced

inorganic, lends very valuable aid. In the chemical laboratory the students examine various baking powders, carbohydrates with regard to their property of hydrolysis, and later in the year they test foods for their inorganic adulterations.

There is in the Junior cookery no experimental cookery as such. That is, the students have no undirected research work; all of their experimental work is directed, and of course serves to illustrate the general principles. We examine the food principles with regard to their composition, food value, and digestibility; we take up the subject of digestion carefully, and of course consideration is given to that in the physiological laboratory as well. We consider the effects of heat and the methods of application. We also consider the effects of cold, both above and below the freezing point, so that we teach the work in physics in a very practical way.

As a result of our Junior training, we wish to find developed in the student a knowledge of the underlying physical and chemical properties of food, including a careful study of the food principles from both a theoretical and applied standpoint. Also we consider the effect of various enzym and bacterial actions, both singly and in combination. We further wish to find the students able to handle food materials, drawing upon their general knowledge of underlying principles and general properties which they themselves have evolved from the various laboratory exercises throughout the year.

We hope to enter our students in their second year's work with minds trained along scientific lines, for we lay open to them the path of independent work through some undirected research work in various subjects, and we also give them directed reference work with regard to government publications and the standard authorities. Then we hope as well to find at the completion of this first year's work in general cookery facility in handling materials developed together with a mind trained to think independently and along scientific lines.

The plan for the advanced work in Pratt Institute was presented by Miss Jessie A. Long. Miss Bevier then read a statement giving the aim and scope of the elementary work as carried on in the University of Illinois:

The purpose of the course in selection and preparation of food offered in the University of Illinois is to give the student a fundamental grasp of two phases of the food problem. It is recognized that most of the interest in food centers about the finished product, the perfectly cooked

and well flavored dish, but something more than technique and taste must be embodied in any work before it is deserving of the attention of university students. Therefore the sciences are put under tribute in so far as the working of any of their laws is to be demonstrated as operating in the success (or failure) of the work with food.

Take for example the simple law of diffusion of heat, *i.e.*, the tendency of heat to expend its energy in all directions. Once the student has mastered this principle she is ready to make use of it at any point where it may apply. She may proceed according to this law in one case by providing a supply of heat to her sauce pan to make up for the constant loss; she may impede its action by inclosing the heated vessel in a covering of non-conducting material; she may modify its workings again by interposing a like material between the summer heat and her ice-box; or she may call its most striking action to her aid in the freezing of desserts. In like manner chemistry, physiology, bacteriology, economics, and esthetics, are made to contribute to an understanding of the work.

In the laboratory preliminary experiments showing this scientific basis for the treatment of foods are given, followed by definite directions for the preparation of successful dishes on the basis laid down.

It is expected that criticism of this last statement will be met with from those who favor the plan of leading the student to develop her own recipes from the principles mastered. But it is believed that recipes have a useful and legitimate place as aids in the successful preparation of food, and that, in so far as the work here is concerned the slight educational value of this method is not to be considered in comparison with the saving of time of busy university students. It is expected, however, that the class will develop a certain amount of judgment in regard to recipes and to the product likely to result from their use. In other words, some analysis of recipes as such is insisted upon.

The idea is constantly emphasized that while there is apparently an endless array of both food materials and of methods for their manipulation, there is underneath all this a very simple and orderly foundation of scientific laws, and that with this foundation as a basis it is possible to get a true perspective of selection and preparation of food amidst all accidents of circumstance.

In closing the discussion, President Bevier called attention to the fact that it had been quite clearly shown that however the methods

might differ there had been very general agreement that the final result should be food in an attractive and appetizing form. She also expressed the belief that good results in cooking were secured only by working in accordance with the laws of science, and that much scientific work with food had been done by people quite ignorant of science as such. For example, the woman who makes bread successfully, though she considers herself quite ignorant of bacteriology, does understand very well that she must not "scald the yeast."

The *Bread Book* gives some three hundred recipes, by following which good bread may be obtained *provided* certain fundamental principles about temperature, time, and due care in manipulation are exercised. It would appear from these papers that there are many methods of teaching people to obtain good results in cooking, *provided* also certain fundamental principles are not violated.

A CAFETERIA FOR COLLEGE STUDENTS.¹

MARY ELLIOTT ARNOLD.

Cornell University.

In planning a cafeteria for college students we had four aims: (1) To serve attractive, homelike food; (2) to provide well-balanced and nutritious meals; (3) to sell them cheap enough to enable the poorer students to buy; and (4) above all to make the experiment pay. The last two items were, of course, the greatest problem. The cafeteria method of serving was decided on as reducing service to a minimum. Laundry bills were cut to a minimum by the use of paper napkins. The unit of two hundred was found advantageous because a simple equipment with a moderate investment of capital requires but little expenditure for interest. The only unnecessary expense allowed was in the decorations and china, both of which were made dainty and attractive.

With these a moderate rent, small interest because of the modest investment, and minimum amount for wages, it was possible to put what money came in where it was essential, namely, into the food itself, and butter, milk, eggs, and cream were used as freely as was practicable in the cooking.

There proved to be another advantage to the two hundred unit. Instead of employing the hotel or institutional chef, the cooking could be done by women and these women could be trained by the managers themselves and so carry out the ideals of the place.

In planning the menus, the work done by the department of Home Economics of the University proved of the greatest practical assistance. Meat is an expensive form of protein and to bring down the cost of the meals it was decided to use meat substitutes, such as cheese, nuts, legumes, etc., as well as the standard lamb, pork, and beef. We give below two price lists showing the advantage in price of substituting other forms of protein for meat in part of the meals:

¹ Presented at the Washington Meeting of the American Home Economics Association, December, 1911.

MEALS OF AVERAGE STUDENT (1).

<i>Breakfast:</i> Cereal, 5 ¢; coffee, 5 ¢; roll and butter, 2 ¢.....	\$0.12
<i>Dinner:</i> Meat, 15 ¢; potatoes, 3 ¢; soup or vegetable, 5 ¢; dessert, 5 ¢; bread and butter, 2 ¢.....	.30
<i>Supper:</i> Meat, 10 ¢; vegetable, 5 ¢; salad or sweet, 5 ¢; tea, milk, or cocoa, 5 ¢; bread and butter, 2 ¢.....	.27
Total.....	\$0.69

This is \$4.83 a week—too costly a rate for a large number of the students.

MEALS OF AVERAGE STUDENT (2).

<i>Breakfast:</i> Cereal, 5 ¢; roll and butter, 2 ¢ (coffee is omitted)....	\$0.07
<i>Dinner:</i> Meat substitute, 5 ¢; vegetable or soup, 5 ¢; potatoes, 3 ¢; dessert, 5 ¢; bread and butter, 2 ¢.....	.20
<i>Supper:</i> Meat substitute, 5 ¢; vegetable, 5 ¢; salad or sweet, 5 ¢; tea, milk, or cocoa, 5 ¢; bread and butter, 2 ¢.....	.22
Total.....	\$0.49

This gives a total for the week of \$3.29, a saving of \$1.54 over price list No. 1, with no loss of energy value.

Meat and a meat substitute are served side by side on the counter, and though not all the students take scientific feeding quite seriously a percentage of them are genuinely interested. By January of the first year one-half the students took the meat substitute and when the college closed in June several reported that they had come through the entire year in excellent physical condition on from \$2.24 to \$2.80 a week. Only very simple menus are served, though we try to vary the food from meal to meal. Sample menus are given below:

<i>Dinner.</i>		<i>Dinner.</i>	
Swedish Onion Soup.....	\$0.05	Mexican Bean Soup.....	\$0.05
Roast Beef.....	.15	Roast Pork and Apple Sauce....	.15
Walnut Loaf with Tomato Sauce (meat substitute).....	.05	Cheese Pudding (meat substi- tute).....	.05
Creamed Carrots.....	.05	Fried Parsnips.....	.05
Baked Potatoes.....	.03	Boiled Jacket Potatoes.....	.03
Cousin Mary's Muffins.....	.01	Corn Muffins.....	.01
Caramel Cream.....	.05	Washington Pie.....	.05
Nantucket Pudding.....	.05	Cornell Pudding.....	.05
Coffee, Tea, Milk, Cocoa.....	.05	Coffee, etc.	
Bread, 2 slices.....	.01		
Butter.....	.01		
Cream.....	.03		

*Supper.**Supper.*

Hungarian Moufa.....	\$0.10	Mexican Stew.....	\$0.10
Peanut Croquettes (meat substitute).....	.05	Lentils (meat substitute).....	.05
Creamed Cabbage.....	.05	Leipsiger Allerlei.....	.05
Emma's Potatoes.....	.05	Fried Potatoes.....	.05
Banana Salad.....	.05	Primaverd Salad.....	.05
*Baked Apple.....	.05	Baked Apple.....	.05
Hot Rolls.....	.01	Hot Rolls.....	.01
Coffee, etc		Coffee, etc.	

*Baked apples are served every night by request.

Granting good cooking and arithmetic as the two most important factors of an eating place, the psychology of feeding certainly comes next on the list. Why does the public like this and not that? Why for instance do people always take the first pudding on leaving the steam table, so that it is wise to place the least popular one there? Why when exactly the same menu was served in a large college dining room and at the cafeteria did complaints follow in the one case and praises in the other? Why, to take a common instance, do people prefer to go where there is a crowd? These are superficial instances, but other questions strike deeper. Attractive surroundings, a pleasant atmosphere, and social intercourse make as great an appeal as wholesome and appetizing cooking. There are laws of attraction and repulsion that must be studied before the problem of public feeding is to be solved. As one of the students said in speaking of two eating places "when I go to a 'dog' (a cheap restaurant) I feel like a dog and when I go to —'s I feel like a gentleman."

THE LUNCH BASKET PROBLEM.¹

AGNES HUNT.

Michigan State Agricultural College.

There are four common ways of carrying a lunch: (1) By means of a tin pail; (2) by means of a pasteboard or papier-maché box; (3) in a collapsible lunch box; and (4) in paper bags or wrapping paper. We experimented on the first three of these.

By comparison we find that the tin pail keeps the articles of food in the best condition, although it retains the odors and distributes them through the different articles. The pasteboard or maché box ranks second in keeping the food moist and it allows the odors to escape somewhat. The collapsible box allows the food to dry out more than either of the others and, although it is of course more conveniently carried home at the end of the day, it is in reality the least satisfactory. On the whole, the tin pail seems the most desirable. Of course, a regular dinner pail, manufactured in sections, is more expensive in the beginning, the cost being 25 cents while that of the others is only 10 and 15, but it pays for itself in the long run when you consider that it is practically indestructible and may be kept sweet and clean under the purifying influence of boiling water.

Much of the attractiveness of a lunch depends upon the manner of packing. System and order, together with neatness and calculation, are necessary in order to prepare properly an inviting lunch. The first thing, of course, is to be sure that the lunch box or basket is absolutely clean. Line it every time it is used with fresh paper. For this, oiled paper is best and is really very inexpensive, a dime's worth being enough to last a month or more for this purpose, and to wrap sandwiches. Wrap each article of food separately and place in the box neatly, putting those to be used last, in the bottom, unless they are easily crushed. In that case, put those articles where they will be hurt the least. It is surprising what may be carried by means of a covered glass or one with a screw top—a baked apple or other wholesome sauce, syrup, or honey. If fresh grapes are to be put in, they may be spared crushing by the use of such a glass. Salads and baked beans may also be carried in this manner. If sanitary drinking foun-

¹ Presented at the Washington Meeting of the American Home Economics Association, December, 1911. The experiments reported were carried on by Alice E. Jeffery and Elizabeth M. Palm, Seniors in the Home Economics course at the Michigan State Agricultural College in 1911.

tains are not accessible to the lunch carrier, a sanitary collapsible drinking cup is a wise addition to the basket and takes up only a little space. After the lunch is all packed, lay a neatly folded paper napkin on top.

Using the cost as a basis we worked out several menus for lunches and were surprised to find what a satisfactory lunch could be prepared for from eight to ten cents; and from the standpoint of variety and suitability we found that the material at hand was abundant. We prepared three lunches, which conformed as nearly as we could calculate to the required calorific food value, for which we used a combination of the Voit, Atwater and Benedict, and Chittenden standards.

LUNCH NO. 1. FOR A MAN AT SEVERE MUSCULAR WORK.

Calories required = 1015.

Four ham sandwiches.....	635
Two molasses cookies.....	228
One piece cheese (20 grams.).....	78
One orange ($\frac{1}{2}$ lb.).....	85
Total calories.....	1026

LUNCH NO. 2. FOR A MAN AT MODERATE WORK.

Calories required = 756.

Three cheese sandwiches.....	477
One boiled egg.....	85
One molasses cookie.....	114
One orange.....	85
Two pieces celery.....	3
Total calories.....	764

LUNCH NO. 3. FOR A WOMAN OR CHILD AT MODERATE WORK.

Calories required = 606.

Three celery sandwiches.....	384
One boiled egg.....	85
One cookie.....	114
One apple.....	30
Total calories.....	613

For a growing child we have assumed the same number of calories as is required by a woman in moderate work, 606 calories. The average lunch will mount up to a much higher calorific food value than this

—a lunch, for example, which contains three or four meat or cheese sandwiches, cookies, cake, pie, etc.

Sandwiches form the foundation for so many lunches and furnish variety to such an extent that the following outline has been worked out. Sandwiches may be classed according to the kind of bread used, each kind having certain fillings especially suited to it:

I. White bread.

- (a) Meat—Plain or chopped and mixed with salad dressing for variety. By actual experiment we have found that meat chopped and mixed with dressing will go twice as far as plain sliced meat.
- (b) Egg—Of course there are numerous ways of preparing these. We tried three kinds: (1) Plain sliced hard boiled egg; (2) chopped egg with salad dressing; (3) chopped egg with cream sauce. Of these three we like the plain sliced egg the best.
- (c) Salad sandwiches—This idea is somewhat new, but we have found that delicious sandwiches may be made from almost any kind of fresh vegetables chopped and mixed with salad dressing. Of these we made (1) lettuce, and (2) celery.
- (d) Relish sandwiches—These consist of olives, pickles, or pimentos, chopped and mixed with dressing if desired. They are very satisfactory.
- (e) American cheese, plain or mixed with dressing—Of course these are not so new but they are very good and nutritious.

II. Boston brown bread—This may include (a) cream cheese; (b) chopped nuts; and (c) Dutch cheese.

III. Rye bread—This may include (a) cheese; and (b) spiced meat.

IV. Fancy sandwiches—These form a class by themselves. They are usually made with white bread and include (a) jelly; (b) orange marmalade; (c) nuts; and (d) dates or figs. These are commonly called "sweet sandwiches" and are best used when no cake is to be had. Meat sliced thin and packed in a neat little package is nice to put in to be eaten with them.

We have computed the value of some of these sandwiches as follows:

(1) Two celery sandwiches weighing 79 grams give a calorific value of 253; (2) two ham sandwiches weighing 90 grams give a calorific value

of 318, as do also (3) two cheese sandwiches weighing 85 grams; (4) two egg sandwiches (plain) weighing 119 grams give a calorific value of 335. The rest of the lunch, as previously stated, must be made to correspond to these calorific values.

The next articles to be considered are the cakes and cookies. Rich cakes must always be avoided as well as those which crush. A layer cake is out of the question, but the following may be used very nicely: (1) Gingerbread cut in neat squares, which may or may not be frosted; (2) sugar cookies; (3) drop cakes, which are very easily and quickly made, and which furnish variety; (4) strips of cake with plain frosting; (5) ginger snaps and molasses cookies; and (6) little sponge and spice cakes. In regard to the keeping qualities of these we found that the cup cakes and soft cookies were best and more desirable for the lunch.

We next studied the matter of relishes. These add little if any to the calorific value, but they do add to the flavor and general attractiveness of the lunch. Radishes, olives, small pickles, or celery may be used, but a small quantity is all that is desired, as for instance, three olives or two pickles.

Fruit should always be used in season. A ripe but solid peach, pear, or apple is always pleasing. Grapes may be carried in a covered glass to keep them from crushing. Bananas are too hearty on top of the average lunch. One might add a tightly covered glass containing apple sauce, prunes, a baked apple or pear, a baked custard, a canned peach, or jam. These are best used when fresh fruit is not available and should be eaten with plain bread and butter sandwiches.

Confections are desirable if few other sweets have been put into the lunch, but only the pure maple sugar or home-made fudge or molasses candy should be used.

The conclusions we would draw are these:

- (1) The average lunch is too heavy.
- (2) The quantity of food used may be suited to the needs of the eater in a "put-up" lunch as well as in a hot dinner.
- (3) A large variety of food is obtainable which is very suitable for the needs of the lunch basket.
- (4) A tin pail furnishes the best means by which to carry a lunch.
- (5) Planning is needed in the preparation of a lunch.
- (6) There is no excuse for a lunch looking anything but neat, and that it may, on the other hand, be a "work of art."

HIGH SCHOOL LUNCHEONS IN PHILADELPHIA.¹

EMMA SMEDLEY.

Superintendent of Lunch Rooms.

School luncheons in Philadelphia began as an experiment in the William Penn High School for Girls, which accommodates about eighteen hundred pupils. At the opening of the following school year, September, 1910, the Board of Public Education expressed its approval of the work of the previous year, by extending the luncheon scheme to include the large Manual Training High School for Boys.

At present the lunch rooms are under the supervision of a person appointed by a committee of the Board of Public Education. She is authorized to engage all assistants necessary to conduct a lunch room which shall furnish to the pupils and teachers wholesome, nutritious food at net cost; to purchase all food supplies and arrange the selling price in accordance with the original cost, so that all expenses of service and food will be met by the luncheon receipts; and to pay all bills after they have been approved by a committee appointed from the faculty of the school.

The director of luncheons meets the individual problems of each school through the principal, or through the faculty committee. When opening a new lunch room, the director meets the pupils and teachers in their morning assembly and talks to them of the value of a wholesome luncheon, and the plan to be followed in the present system. She explains how the luncheon will be managed on the coöperative plan—the Board of Education furnishing the equipment, while the food is purchased at the best wholesale prices and served at a price that will be sufficient to cover the cost of the food and service. The heart of a boy is reached when he feels that he is given a “square deal,” and these boys are at once enthusiastic over the plan, and are eager to be of assistance in the lunch room.

In each of the seven schools at present included in the system there is a competent person, a graduate in domestic science or one trained by her, who is responsible for the carrying out of all plans made by the superintendent; the details of food preparation and serving, keeping a record of stock on hand, selling luncheon checks to the students, and making bank deposits. She reports each day by telephone or in person to the office of the superintendent.

¹ Presented at the Washington Meeting of the American Home Economics Association, December, 1911.

The number of helpers is arranged according to the need in each school. With an enrollment of about 4000 children and about 200 teachers, we employ 29 women, 1 man, and 50 student aids. Seven of the women are employed only three hours each day, one woman gives half of her time to the duties of cashier in one of the large schools, and the other half to the bookkeeping and stock records for *all* of the schools.

In addition, pupils are engaged as helpers. These pupil aids are supervised by a class representative; they serve in turn; and they show a business attitude to their work. They are paid ten cents a day.

It was with some trepidation that we ventured to serve food to the high school students, for the traditional high school luncheon consisted of pastry, cream puffs, crullers, and a great variety of cakes and candies. Our plan is to exclude all of these from the menu and to furnish simple, plain foods, from which may be selected a substantial mid-day meal; soup, meat, substantial vegetables, cocoa, and home-made desserts.

At first the boys did not take willingly to our bill of fare, and we had to coax them to try the new kinds of plain substantial foods in place of the customary pastry and cakes. This was done by means of printed signs in the form of rhymes, tacked up in conspicuous places about the room. We see many evidences that their ideas have changed. Recently one of the boys said, "We boys didn't like your place at first, but I don't think there's many fellows could eat the other stuff now; and another boy remarked, "We boys certainly do respect the lunch room."

A few days ago one of my assistants met a graduate of last year, now in business, who said that he used to think he realized the excellence of our lunch, but he never had appreciated it so much as now when he is going from one restaurant to another in search of something attractive and palatable that will come within the reach of his purse.

To quote from a recent report sent to the Board of Education by the principal of one of our large schools:

We have now had enough experience with the coöperative lunch room to justify our reporting it to be an entire success. Our pupils are furnished with wholesome food at prices varying from one-fourth to three-fourths the charge at good restaurants. For example, each day's menu includes one solid dish, usually a meat and a roll, for 5 cents, a large cup of cocoa with whipped cream for 3 cents, and excellent meat sandwiches for 3 cents. At first very many of the pupils brought lunches from home, but gradually they have come to see that it is not only more convenient

but also more economical to patronize the lunch counter. The lunch plant is entirely self-sustaining, and as the profits have grown, the portions of food have been increased and the price reduced.

The daily menu also includes soup and a roll 5 cents, pudding for 3 cents, ice cream 5 cents, milk 3 cents per glass, fresh fruits varying in price according to the season, dried figs and dates in 2 cent packages wrapped in paraffin paper, sweet chocolate in 1 cent, 3 cent and 5 cent portions, hard pretzels, and plain biscuits. Cake is on the menu only when it can be made in our own kitchen, and is then served in place of the dessert.

The soups, macaroni and cheese, baked beans, beef on toast, hot roast beef sandwiches, and puddings are all very popular. At the William Penn High School, we frequently serve 40 gallons of soup, 18 gallons of baked beans, 400 sandwiches, and 1200 portions of pudding and ice cream in a single day.

At all of the schools the soup, substantial dish, and desserts are varied each day and a record is kept of the daily menu showing the number of portions served. For this record a printed card is provided each week by the central office. At the end of the week this menu report is sent to the superintendent, who compares it with the record of the preceding week and makes suggestions for any changes which may give better combinations or a greater variety in the menu for the coming week.

A table d'hôte luncheon for 15 cents or 20 cents is served each day to the faculty in the large schools. The teachers from a grammar school several squares away come every day to one of our buildings for their lunch, and in one of the small schools there are about fifteen pupils coming from a grammar school near by. These boys requested to be allowed to patronize our lunch counter.

Each school is visited once a week by the superintendent, or by one of the assistants, during the morning or at the luncheon hour. The central office is in communication with each school by telephone every day.

In order that the inexpensive school lunch room may be self-supporting and at the same time maintain a high standard of excellence, the buying must be done most carefully by a person who is thoroughly familiar with all food supplies. She must also follow the food that was ordered into the kitchen and to the lunch counter and be able to detect wasteful methods on the part of employees, for it is only by exercising true economy in every section of the work that success will be gained.

We have formulated a system for keeping a record of the supplies on hand. Each school is provided weekly with a supply sheet on which is printed a list of every article to be found in our store rooms. The person in charge notes in the first column on the sheet the amount of each article on hand, and in the next she records the amount received during the week. The quantities used each day are noted in other columns, so that at the end of each week the amounts in the store room will correspond with the last column on the sheet, it being the sum of the first two columns, less the stock used during the week. This total is used for the first column of the sheet for the following week. This sheet is then sent to the bookkeeper who transfers to an indexed card file the amounts received and the total on hand.

This handy desk record of all supplies in each school is very helpful when giving the weekly orders, and it simplifies the work of preparing the monthly financial statement. It is also useful in stimulating greater care in the use of supplies by those in charge of the various schools.

The following is a portion of a weekly supply sheet:

Name of School.....Week ending

	SUPPLY	RECEIVED	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	BALANCE
Salmon....
Sardines....
Tongue....
Soup stock..
Tomatoes..

The equipment for the school lunch room depends upon the character of luncheon to be served, the number of pupils and teachers in the school, and the kind of helpers employed.

When planning the *ideal* kitchen or lunch room for a large school, one must consult with the architect who is making the original plans for the building. He must consider the location of all permanent equipment; steam cookers, range, sinks, counters etc., that he may provide for adequate ventilation and underdrainage. Few of us, however, have this opportunity of beginning with the building and must make the best of conditions that we find in old, poorly planned buildings. At our William Penn School the present plan of having food

prepared at the school was not so much as thought of until the building was completed. On this account we suffer daily from inadequate floor space in kitchen and pantry, in the seating capacity of the lunch room, and from insufficient ventilation and drainage. But we have made the best of these conditions in arranging the present plant which now provides for 2200 pupils and 90 teachers.

In the annexes it had been necessary for us to adapt various existing conditions to our needs. For instance, in one of these schools we use for our kitchen a room that was originally intended for the kitchen of a private house. For serving we have placed a counter across a window, and a serving table (heated by gas) in a doorway of the old mansion. The four hundred students file past this window and door, are served, and then go into the class rooms, using the desks as tables. All soiled dishes are returned to the counter, and the class rooms left in order at the close of the recess period.

In another building a closet, having one window, is used for our kitchen, and a table placed in the hall in front of the door answers for a counter. Even in our large schools we do not employ men chefs or colored cooks, but have all of the cooking done by domestic science graduates, assisted by women with home experience.

We are hoping to coöperate in the near future with the domestic science department of the high school, and give the students who are taking the vocational course the opportunity of actual experience in the preparation of food in large quantities and in the management of the lunch room. Through this training a girl may be assisted in finding congenial employment, and we shall probably secure some very valuable permanent assistants.

We are also making arrangements with the director of the domestic science department of Drexel Institute to provide a place for students who wish to gain experience in luncheon management. By this plan students who are taking the institutional course may spend some time in our schools, as pupil dietitians, before receiving the Drexel certificate.

THE FLOUR AND YEAST IN BREAD.

FLORENCE I. DUDLEY.

Agricultural College of Utah.

Good bread indicates a relatively well advanced stage of civilization. Many housekeepers of today make good bread, but often they neither understand the reasons for the methods used, nor know the cause of the difficulties which may arise. The tests here reported were made at the Agricultural College of Utah, in the hope of explaining some of these difficulties.

The two most important ingredients of bread making, the flour and the yeast, are also the most variable. The quality of the flour depends both upon the kind of wheat used, and the way in which it is milled. Hard wheats, in general, make better bread flour than soft wheats. Those used in the baking tests summarized below were common Utah varieties, which had been studied at the Utah Experiment Station. The names of the flours, "high patent," "straight grade," etc., correspond to those in common use in most sections of the United States.

The following standard recipe is characteristic of those followed in the tests:

Milk and Water Bread.

One cup scalded milk in one cup water. (Better bread is obtained if the water has been boiled.)

One yeast cake dissolved, or its equivalent of liquid yeast.

One-fourth cup lukewarm water.

One and one-half teaspoonfuls salt.

Two tablespoonfuls sugar.

One tablespoonful lard.

One tablespoonful butter.

About 6 cups sifted flour, or 1 cup high patent flour and enough entirewheat flour to knead.

The sugar, lard, and butter may be omitted if desired.

Put the butter, lard, and sugar (if used) and the salt in a bread raiser, pour on the scalded milk, and add the water. When lukewarm, add the dissolved yeast cake and five cups of flour; then stir until thoroughly mixed. Add flour, enough to knead, let rise until it doubles in size, knead down again, and let rise a second time. This second kneading and rising is sometimes omitted, but bread has a better texture when it is so treated, no matter what kind of yeast is used. Form into loaves, place in the pan, let rise until it doubles its bulk, and then bake.

Difficulties in bread making due to flour.—Gluten is, of course, the most important ingredient in flour for bread making purposes. It is composed of gliadin and glutenin, and the bread making quality depends on the proportion of the two. The gliadin, a sort of plant gelatin, is the material which binds the flour particles together to form the dough, thus giving it tenacity and adhesiveness, and the glutenin is the part to which the gliadin adheres. If the gliadin is in excess, the dough will be soft and sticky; in case of a deficiency there is lack of expansive power. A flour may have a high percentage of gluten and total protein and still not produce the best bread, because of an imperfect blending of the gliadin and the glutenin. The more gluten there is in a flour the more water it will absorb, and it has been found that flour of about 12 per cent gluten makes the most satisfactory bread, providing its two parts, gliadin and glutenin, are well balanced.

Sometimes bread looks very promising when it first begins to rise, but when it is ready to be formed into loaves it becomes flat instead of rounding over the top. This may be due to such causes as (1) lack of gluten in the flour; (2) an insufficient amount of flour; or (3) the flour made from frosted wheat.

The influence of hot and cold flour on bread making.—When flour is kept in a cold place—especially during the cold months of the year—and used without warming it, it is not in a good condition to make bread. Cold checks the action of fermentation and occasionally becomes the cause of bad bread. On the other hand, flour for bread may be heated too high. Dough made from flour that has been heated to about 158°F. does not make the best bread, because the dough will be too soft and will have a tendency to be ropy. The best temperature for flour is 70°F.

Wetting in bread.—The practice of using milk in domestic bread making is quite prevalent in some sections. That the custom does not become more general must be due either to the lack of appreciation of the food value of milk, or because it requires more care to use milk successfully.

Excellent and nutritious bread is made with whey or scalded buttermilk or skimmed milk as part of the wetting, instead of water alone. The addition of skimmed milk, buttermilk, or whey has very much the same effect as regards food value, with the exception of the fat content, as is shown in the following table. The use of whole milk as a part of the wetting adds the most to the food value of the bread, but it is more expensive than the other milk products mentioned. The follow-

ing table shows the composition of whole milk, skimmed milk, and buttermilk:

Relative composition of whole milk, skimmed milk, and buttermilk.

KIND OF MILK.	WATER.	PROTEIN.	FAT.	CARBO- HYDRATES.	MINERAL MATTER.
	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
Whole milk.....	87.0	3.3	4.0	5.0	0.7
Skimmed milk.....	90.5	3.3	0.3	5.0	0.7
Buttermilk.....	91.0	3.0	0.5	4.8	0.7

Yeast.—Yeast requires moisture, warmth, and food for growth; no matter what form of yeast is used by the housekeeper, it must be provided with these conditions for growth to make the bread light. Dry yeast cakes, compressed yeast, and so-called “live” yeast (the home-made liquid yeast often called “elastic,” “elective,” or “germ”) are the sorts usually used in Utah households.

Moisture is lacking in commercial dry cake yeast and it keeps for a long time; in the others moisture is present and the yeast plants “work themselves out” or die. A temperature a little below body temperature (74°F.) is best for the growth of yeast. This is the reason for keeping the bread lukewarm. The principal food for growth for yeast is sugar, or if this is not present, it converts starch into sugar. Potato water added to yeast contains starch and mineral matter which is also needed, and therefore is a good food for the yeast. Even a very low temperature does not kill yeast—it merely checks its growth—but boiling will kill it.

Experiments made as a part of the study here reported have shown that 337 cc. “live” yeast (i.e., the home-made liquid yeast), or $1\frac{1}{4}$ cups, are equivalent to 6 grams compressed yeast; 787.5 cc. “live” yeast are equivalent to 1 compressed yeast cake; 335 cc. “live” yeast are equivalent to 1 dry yeast cake.

The following summary of data regarding yeast includes the result of numerous experiments which were carried on, as well as some general data. The commercial dry yeast is the yeast plant mixed with some flour and corn meal and dried at a low heat. In this form it can be kept for a year or longer. It eventually grows weaker and dies out in keeping. Because of its keeping qualities, it is a convenient form for the housekeeper to have at hand. It can be used to “start” “live” (liquid) yeast if the yeast is wet up with water and the corn meal is

carefully strained out. In using it for bread, the yeast cake should be soaked in one cup of lukewarm water for one hour; then a sponge should be made of this by adding $1\frac{1}{2}$ cups of flour. Allow this to rise in a warm place from four to six hours and the sponge is ready for use. In the experience of housekeepers bread made from this dry yeast is not good unless the water has been boiled.

Compressed yeast is a very satisfactory source of yeast for those who live in towns or cities where it may be purchased fresh in the market. It is a perishable article, only lasting in good condition for a few days when kept on ice. Care should be taken that the cake, after it has been opened and not all used, is rewrapped in the tin foil, as it deteriorates more readily if left open. The so-called quick process bread is made in from four to five hours by using a larger quantity of yeast, while long process bread is made in from eight to twelve hours. For 1 cup (225 cc.) of liquid 3 grams of compressed yeast cake is necessary for long process bread, and 10 grams for quick process bread; 1 quart of wetting (900 cc.) requires 6 grams for long process bread, and 26.5 grams for quick process bread.

"Live" yeast, as the old-fashioned liquid yeast is known in Utah, when home made is very satisfactory and can be made and kept by any housekeeper who chooses to do so. Formerly it was thought necessary to get a "start" from a neighbor, but this is now an idea of the past. "Live" yeast can be started from compressed yeast, or dry yeast cakes. "Live" yeast is ordinarily made as follows: Boil $1\frac{1}{2}$ cup potatoes in 1 quart water until done; to the potato water add 2 ounces sugar, and when cooled to lukewarm temperature add about $\frac{1}{4}$ yeast cake. Keep in a warm place and in from two to eight hours the yeast will be ready for use. The time depends upon whether proper conditions for growth are provided for or not. Be sure the yeast has worked well before bread is made with it, and use only the cupful taken from the top of the yeast for a new starter.

It has been found by the experiments here summarized that (1) the yeast, when no mashed potato is added to the water, grows faster and does not require so much sugar to keep it sweet, although the bread will not be as moist; (2) salt retards the working of yeast a little but not to any great extent; (and 3) a little ginger hastens it. In the experiments with the ginger, one cup of new yeast was placed in each of two flasks. The carbon dioxide given off in each case was measured by collecting the gas over water in a graduated measuring cylinder. It

was found at the end of three hours that the bottle to which $\frac{1}{8}$ of a teaspoonful of ginger had been added gave off 50 cc. of gas, while the other one gave off only 30 cc.

Washing yeast.—When the yeast “wears out” it makes bread similar to bread made from sour yeast. It can be renewed by adding water and allowing it to stand a few hours, then turning the water off, leaving the yeast in the bottom. If washed again, sugar and potato water added, and allowed to rise, it will make bread as good as when it was new. This washing seems to remove foreign micro-organisms. However, it is easier to make new yeast from yeast cake, and most people do so instead of washing the worn-out yeast.

Feeding yeast.—Yeast in liquid form prepared at home may be kept alive and active by adding sugar. It is more economical, however, to save the top part of liquid yeast and add it to potato water a few hours before using, as in this way less sugar is necessary. In an experiment yeast eight days old and yeast twelve hours old made bread of the same quality. The yeast was made and kept growing for eight days by the addition of sugar. Another jar of yeast was made and kept for six hours, and bread was made from both of these yeasts at the same time. The results were similar and the breads were both good.

Sour yeast.—When it is kept too long, yeast sometimes turns sour; this is probably due to other micro-organisms besides yeast plants developing in it, giving off acid in their growth. It is sometimes possible to sweeten sour yeast by the addition of a little soda and make good bread from it, but it will not do for a starter for new yeast. Of course, much depends on the length of time the yeast has been sour. In one case where yeast soured and stood a long time, then was given food, it became slimy and thick as a result of the foreign micro-organisms that developed in the liquid. This yeast made a fairly good loaf of bread, however. In case of very slight sourness in yeast, sugar will sometimes counteract it.

Frozen yeast.—Yeast that has been frozen cannot be depended upon to make bread. The reason for this is not entirely understood, but it is probably due to the fact that the cold destroys the vitality of the yeast cells so thoroughly that when a higher temperature is restored the cells are no longer able to renew their growth. The exact amount of cold necessary thus to deaden the cells is not definitely known.

BREAD EXPERIMENTS WITH DIFFERENT FLOURS AND YEASTS.

Nineteen baking experiments were made with flours from different types of Utah wheat and with different kinds of yeast prepared in different ways. The kind and amounts of yeast, the amounts of other constituents, and other data are shown in the following table:

Kind and amount of material used in making bread.

NO. OF SAMPLE.	DRY COMMERCIAL YEAST.	COMPRESSED YEAST.	"LIVE" OR LIQUID YEAST.	WATER.	SUGAR.	SALT.	FLOUR.	KIND OF FLOUR.	TIME IN SPONGE.
	Gms.	Gms.	Cc.	Cc.	Gms.	Gms.	Gms.		Hours.
1	8			900	20	10	1468	Straight grade	$\frac{3}{4}$
2	7			900	20	10	1600	High patent	6
3	8			900	20	10	1700	High patent	6
4	7			900	20	10	1700	Straight grade	6
5		6.0		900	20	10	1500	High patent	2
6		26.5		900	20	10	1490	High patent	1
7		10.0		225	16	4	382	High patent	1
8		10.0		225	16	4	389	Straight grade	2
9		10.0		225	16	4	329	High patent	2
10		10.0		225	16	4	390	Turkey	2
11		10.0		225	16	4	356	Straight grade	2
12		10.0		225	16	4	346	High patent	2
13		10.0		225	16	4	390	Kofod	2
14			225		16	4	328	Turkey	
15			225		16	4	375	High patent	
16			225		16	4	365	High patent	
17			225		16	4	392	Straight grade	
18			900		20	10	1324	High patent	
19			65		16	4	368	Straight grade	

The following table shows the time the different samples were allowed to rise, the duration of the baking period, the quality of the bread, and similar data.

It will be seen that in most cases the bread was of fair quality. In only one case was the quality poor, and in several it was excellent.

Results of experimental studies of bread.

NO. OF SAMPLE.	TIME OF FIRST RISING.	TIME OF SECOND RISING.	TIME IN PANS.	TIME IN OVEN.	TEXTURE OF BREAD.	FLAVOR OF BREAD.	WEIGHT OF ONE LOAF.	REMARKS.
	Hours.	Hours.	Hours.	Hours.			Gms.	
I	9	2½	I	¾	Fair	Good	830	Yellow bread, 335 grams flour added at first kneading, 60 grams when put in pans. Bread was ropy.
2	10	1½	I	¾	Fair	Good	1090	
3	10	1½	I	¾	Fair	Good	900	
4	10	2	I	¾	Good	Good	1000	
5	9	3	I	I	Excel.	Excel.	476	A little yellow. A little yellow.
6	2	I	1½	I	Good	Good	1095	
7	2		I	¾	Excel.	Excel.	539	
8	2		I	I	Excel.	Excel.	530	
9	2½		I	¾	Fair	Good	509	
10	2		I	I	Poor	Poor	475	
11	2		I	I	Excel.	Excel.	466	{ One loaf in each case.
12	2		I	I	Fair	Good	494	
13	2		I	I	Good	Good	461	
14	2		I	¾	Excel.	Good	899	
15	2½		I. 15	¾	Good	Good	503	Made two loaves. Yellow.
16	2½		I. 10	¾	Excel.	Excel.	576	
17	3		I. 10	¾	Excel.	Excel.	473	
18	1½	I	¾	¾	Good	Good		
19	4	2	I	¾	Good	Good		

The data obtained in the experiments briefly reported in the above tables and in the tests with yeast may be summarized as follows:

CONCLUSIONS.

(1) The quality of flour for bread making depends upon the percentage of gluten in the flour, and the proportion of gliadin and glutenin in the gluten.

(2) The temperature of the flour affects the quality of bread made from it. The best temperature is 70°F.

(3) Nutritive material is added to bread by using whole milk, skimmed milk, and buttermilk for wetting, instead of all or part of the water commonly used.

(4) Quick process bread of good flavor and texture can be made in four hours with "live" yeast as the only moisture.

(5) The length of time required to raise yeast depends upon conditions. If the yeast plants are alive and active, four tablespoonfuls of liquid yeast to two cups of potato water will rise in five hours. One cup of yeast full of life will start 2 or 3 quarts of potato water in from two to six hours if held at the correct temperature, which is about 70°F.

(6) As far as food for the yeast is concerned, it is not necessary to add potato to the potato water. However, yeast with this addition makes more moist bread than does yeast made without potato.

(7) Sour yeast may sometimes be sweetened by a little sugar or a little soda. Such sweetened yeast is, however, not strong enough to use as a starter for new yeast, and if it is too sour cannot be used for any purpose.

(8) Yeast that has been frozen cannot be depended upon to make bread.

(9) Ginger hastens the growth of yeast.

(10) Salt retards the growth of yeast slightly.

FACTORS AFFECTING THE ECONOMIC AND THE DIETETIC VALUE OF FOODS. No 1. A STUDY OF CAKES.¹

AVA B. MILAM.

OUTLINE OF THE DISSERTATION.

I. *Introduction.*

Origin and history of cakes.

II. *Purpose and plan of the experiment.*

1. Purpose of the experiment.
2. Method of work.
3. Proportions of ingredients.
4. Baking.

III. *Variation in methods.*

1. Of mixing.
2. Of melting and creaming the fat.

¹ An outline of a dissertation submitted to the faculty of the Graduate School of Arts and Literature, University of Chicago, in candidacy for the degree of Master of Arts, department of household administration.

IV. *Flours.*

1. Properties affecting the quality, the economic and the dietetic value of cakes.
 - A. Grades.
 - B. Physical properties.
 1. Color.
 2. Granulation.
 - C. Composition.
 1. Gliadin.
 2. Glutenin.
 3. Gluten.
 4. Starch.
2. Use of various grades of flour.
 - A. Comparison of a fine grade pastry, ordinary pastry, and bread flour.
 - B. Comparison of a fine grade pastry, ordinary pastry and bread flour to which corn starch is added.

V. *Sugar.*

1. Properties affecting the quality, the economic and the dietetic value of cakes.
 - A. Influence of amount of texture and grain.
 - B. Forms of sugar.
 1. Granulated.
 2. Powdered.
 3. Soft brown.
2. Use of various forms of sugar. Comparison of powdered, granulated, and sugar syrup on cakes.

VI. *Liquids.*

1. Properties affecting the quality, the economic and the dietetic value of cakes.
 - A. Of water.
 - B. Of whole milk.
 - C. Of condensed milk (diluted).
 - D. Of milk powders (desiccated milk dissolved.)
2. Use of various liquids.
 - A. Comparison of whole milk, condensed milk (diluted) and water.

VII. *Eggs, desiccated egg, and egg substitutes.*

1. Properties affecting the quality, the economic and the dietetic value of cakes.
 - A. Of whole fresh eggs.
 - B. Of cold storage eggs.
 - C. Of broken eggs.
 - D. Of desiccated eggs.
 - E. Of egg substitutes.
2. Use of various forms of eggs; comparison of whole eggs, desiccated eggs and egg substitutes.

VIII. *Fats.*

1. Properties affecting the quality, the economic and the dietetic value of cakes.
 - A. Of butter.
 - B. Of oleomargarine.
 - C. Of lard.
 - D. Of commercial lard substitutes.
2. Use of various fats.
 - A. Comparison of different amounts.
 - B. Comparison of butter, lard, and lard substitutes.

IX. *Food value of cake.*X. *Summary of experimental results.*

PURPOSE AND PLAN OF THE EXPERIMENT.

Purpose of the study.—When an article of diet comes into as general use as has cake, the factors affecting its economic and dietetic value as well as its quality justify study. There is a lack of definite knowledge of these factors and inadequate means of controlling the conditions. The purpose of this study was to show the effect of varying the kind and form of ingredients on the quality, the cost, and the economic and dietetic value of cakes.

Method of work.—The work was carried out on a typical whole egg-butter cake, one of a close grain and fine texture. In many cases the experiments were repeated on a corresponding white cake, differing only in the use of the egg white instead of the whole eggs. Exact weighed amounts of ingredients were used. Every effort was made to prevent any variation in the experiment except for the factor which formed the basis of the experiment in hand. Therefore any difference in the resulting cakes might be attributed to this factor.

In all this work one-fourth the recipe was used, duplicate experiments being carried out in every case, and a final check with the entire recipe.

The tests were made by the instructors in the department.

The prices quoted are retail Chicago prices.

The baking.—The cakes were baked in small oval pans each containing 125 grams of batter and labelled. From the results of previous work of the department, 198°C. was accepted as the most desirable temperature for cake baking. Therefore all the cakes reported in these experiments were baked at this temperature and cakes belonging to the same group were placed in the oven at the same time. While an effort was made to keep the temperature of the oven constant at 195°, a slight variation of a degree or two at times seemed unavoidable.

SUMMARY.

1. The cost of cakes may be reduced from the standpoint of time consumed in the mixing, since the fat used in cakes may be melted as well as creamed. According to Miss Wellman this is estimated to save, on the average, one-half the time consumed in mixing.

2. Good cakes may be obtained from the use of bread flour; still better may be obtained with bread flour, reducing its gluten content to more nearly approximate the gluten content of pastry flour; the best cakes, however, are obtained by the use of the fine pastry flours.

3. Apparently it is the gluten content of the flour that has the most decided influence on the quality of the resulting cakes. So high a gluten content as is found in bread is probably undesirable for use in cakes.

4. The difference in the cost of flours is a factor to be considered. The cost for the 3-cup flour recipe is as follows: Bread flour, 2.3 cents; ordinary pastry 4 cents; and fine grade pastry 6 cents.

5. The form of the sugar has a marked effect on the quality of the cake produced, with little effect on the cost.

6. It is most desirable to have the sugar for cake-making in the form in which it can be most easily and thoroughly mixed, so long as it is kept in a solid state. So powdered sugar affords the most desirable form.

7. The use of powdered sugar is not extravagant in most cases as it adds only 1.1 cents to the cost of cakes made of rolled and sifted granulated sugar.

8. Cakes of as good quality may be obtained with water as with whole or condensed milk.

9. The use of water in cakes means a lowering of cost, a decrease of 1.5 cents (milk at 8 cents per quart) on the cost of the entire cake.

10. By the use of water the food value of cake is also decreased.

11. The greatest gain from the use of water in cake-making arises from the availability, which is a factor quite worthy of consideration.

12. The use of eggs is quite essential in cake-making. They not only serve as partial leavening agents, but they bear a decided influence on the flavor, texture, grain, and food value of the cake.

13. If whole, fresh eggs are not available, desiccated eggs may be used and a fairly good cake obtained, provided the powders are fresh.

14. The effect of the substitution of desiccated eggs for fresh whole eggs on the cost of cake varies according to the locality and season of the year.

15. With the standard 3-cup flour recipe one-half cup of butter seemed to give a cake of the best quality. This means a reduction of 5.1 cents for the ordinary sized cake, estimating butter at 32 cents per pound.

16. In reducing the amount of butter from $\frac{3}{4}$ cup to $\frac{1}{2}$ cup the food value of cake is lowered.

17. Commercial lard substitutes and lard when fresh may be substituted for butter in both whole eggs and white cake without detection, provided the cakes are not eaten when warm.

18. When fats containing no salt, and the fat content of which is practically 100 per cent, are substituted for butter in cake-making, less of the fats should be used with an additional amount of salt.

19. By the substitution of these fats for butter the cost of the cakes is reduced perceptibly, varying from 10.2 cents for butter to from 2.6 cents to 3.1 cents for lard substitutes, 4.6 cents for butterine and 3.1 cents for lard. The difference in the cost of cakes made with the different fats will vary with different localities and different seasons.

20. Of the cheaper fats used the lard substitutes seemed the most satisfactory, but oleomargarine was not tried.

21. In the use of the fats care should be taken that they are fresh, for when rancid they are easily distinguished from butter in cakes even by tastes that are not particularly sensitive.

22. Cake is a fairly concentrated form of food, the average serving containing practically as much food value as one and one-half glasses of milk. So long as it is considered as an accessory to the diet rather than an integral part of it, a decrease in the concentration by the substitution of water for milk and by a decrease in the fat content would not seem objectionable.

THE HOUSEHOLD EXPERIMENT STATION AT COLONIA, N. J.

In a small suburb near New York, in a widespreading pleasant country house, has been going on an experiment of much interest to the practical housekeeper. Here lives Mrs. Frank A. Pattison, who when elected three years ago to the presidency of the Federated Clubs of her state, began the duties of her office by first conquering her own home domain. To quote Mrs. Pattison,

Under my existing arrangement of home obligations, it seemed impossible for me to crowd in another duty. I had either to engage more servants, or to find some other way out of the difficulty. Additional servants meant more time in training them to better ways of procedure, and a double expense to the home. So I began a systematic stock-taking of those responsibilities which were already overbalancing my energies and resources.

I came to the conclusion that absolute self-independence was as necessary to me, as the manager of my home, as it was to any other manager in any other position of trust. This was the goal toward which all my energies must be directed, and for this end my success was dependent upon two factors. The first was the reorganization of methods of housework along modern scientific lines; the second was the elimination of all non-essentials.

Mrs. Pattison feels that it is "practically impossible to raise housework to its true position of dignity so long as we have the present servant class, therefore our first thought must be to help along their tendency to become scarce, and to encourage the formation of a professional type of men and women who will come to our homes by the hour, or day, as one goes to one's office."

But how was this to be done? Only "by eliminating drudgery, the unpleasant methods of doing certain tasks and the long hours of labor under slave contract methods."

Cheap and poor labor is the prominent cause for clinging to such crude instruments as, for instance, the scrubbing brush and the wash board, not to mention the ill-adapted wood and coal stove, and the dark cellar cold storage. Men in their industries have progressed enormously further in rapid ways of accomplishment and in ease of operation, including results in new and wonderful fields.

If women are to become useful, effective, and independent citizens of the community, or state, they must first prove themselves domestically independent and not weaklings, living under the fear of the cook's giving notice, and the inability to make both ends meet.

Mrs. Pattison resolved from the first on an extensive use of labor-saving appliances, especially electrical, and an application of the new principles of business efficiency. She says, to quote again,

There are in this country and England thousands of patents of labor-saving devices. Some of them are excellent. A great many of them are no use at all. The same idea may be contained in several mechanical inventions of different makers. Half may be expensive and useless, and the other half just what women want. It is our business to find out the good things and steer the women away from the bad ones. A great deal of the indifference among women to labor saving devices comes from the fact that pretty nearly everybody has been cheated with them at one time or another.

As the first step in her experiment Mrs. Pattison dismissed her three servants and with the wage and board money saved she installed new and modern conveniences, first in the kitchen, then in the laundry, and finally through the entire house. At the end of the first year she owned a dishwasher, a washing-machine, a vacuum cleaner, a fireless cooker, electric irons, and many other modern appliances, "not the least useful of which is the dustless mop."

All over the house she uses waxed floors and rugs. She has replaced the ordinary kitchen table top by glass and marble, she has eliminated all heavy and hard-to-clean cooking utensils, even though they be heirlooms. A good sized pantry has been made over into a kitchenette and here most of the cooking is done with the help of a small gas stove and a fireless cooker. An electric motor, known in the family as "James the Great" performs a variety of tasks; it polishes the silver, grinds the coffee, freezes ice-cream, grates cheese or chocolate, chops meat, does the family washing, and as it can be wheeled about to any part of the house, it runs the vacuum cleaner. A gas incinerator for garbage is a favorite with Mrs. Pattison. It does its work in the cellar to which the garbage descends by a tube from the sink, burning a bushel of garbage at a cost of three cents for gas. By the help of these various appliances and by a strict cutting down of needless work, as the substitution of paper tablecloths, napkins, and towels for the linen formerly used, Mrs. Pattison has been able to do the work in this large country house for a family of four and many occasional guests with the exception of the washing of bed linen and shirts; she has "brought down the cost of everything, even the coal for the furnace, lived better, and did not have a day's sickness to record." She has even given dinner parties to twenty guests unaided by outside help.

Table service is made possible by the use of a "Susan," a small table top placed in the center of the dining table and revolving on a pivot placed on a pedestal. This may hold salad or dessert or whatever is needed during the meal, so that each person may help himself in turn. There is also in use a wheeled double-decker cart which holds many dishes together with the electric heater for making coffee, boiling eggs, etc. Mrs. Pattison is even willing to give her schedule for a day:

Our train service makes it necessary to breakfast at seven o'clock. Having arranged the table as much as possible the night before, we are ready for breakfast in the morning in from two to fifteen minutes. Fruit, cereal, eggs if desired, with toast and coffee prepared at the table on electric devices, constitute the meal. The coffee is filtered into a thermos jug and remains hot until any hour it may be desired. Such a meal, served for four, is readily cleared away in from fifteen to twenty minutes. Taking a few minutes to run over the floors each morning with a dustless mop reduces special cleaning times, which are again minimized by the use of a vacuum cleaner, on no especial day, but whenever found convenient. The beds have by this time been aired for an hour or more and are ready for spreading. It really takes one person just four minutes to make the ordinary bed. The tidying-up process is made simple by cultivating the habits of the family so that each looks after his own bath-tub and basin, clothes, etc. A forethought for the evening meal as to soup, meat, or vegetables, by putting them hot into the fireless cooker, made it practical for me to take the 9:15 train to any part of the state when necessary, or to attend to Federation work accumulated at home. A simple luncheon was left ready to serve—salad, soup, and cold meat left from the night before. Upon the arrival of the evening train, if I had spent the entire day away from home, it was a simple matter to take the dinner, thoroughly and deliciously cooked, from the fireless cooker.

This is a record of which any woman may well be proud, but Mrs. Pattison has not been content to solve her own problem. She offered a small four-roomed house on her place for a true experiment station for the New Jersey Federation where all manner of appliances could be tried out, and to the formal opening of this building last June came hundreds of club women from all parts of the state. We understand that the special work of this station is to be fully described in a book soon to be issued. Such a book will of course furnish the detailed statements, estimates, time schedules, and costs that one cannot expect from popular lectures and articles which now form our source of knowledge of this very interesting experiment.

AFTER SOME YEARS OF EXPERIMENTATION, WHAT IS THE EDUCATIONAL AIM, METHOD, AND ACCOMPLISHMENT IN COLLEGE COURSES IN DOMESTIC ART?

The following is a partial report of the round table on domestic art which constituted a portion of the program of the meeting of the American Home Economics Association held in Washington, D. C., December 27-30, 1911. Miss Agnes Houston Craig, director of domestic art, College of Industrial Arts, Denton, Texas, was leader of the round table, and opened the program with the following report and recommendations on domestic art education:

REPORT AND RECOMMENDATIONS ON DOMESTIC ART EDUCATION.

MISS AGNES HOUSTON CRAIG.

College of Industrial Arts, Denton, Texas.

The purpose of this discussion is to suggest a more definite and unified conception of (1) the scope of domestic art education together with its aim, method, and accomplishment; (2) its relative values and vital relationship to the general subject of Home Economics; (3) the prerequisite training that should be required for entrance to college courses of this kind; (4) the content of a well-balanced college course in domestic art; and (5) its cultural value.

There seems to be some confusion in the average mind as to just what is meant by the term domestic art. After consulting any standard dictionary the meaning will be obvious, also the fact that the terms domestic art, home art, household art are synonymous. Therefore, the subject matter of any course so designated should logically include all phases of art education as it is related to home construction, the creating and maintaining of a desirable home atmosphere, and home activities, educational and social.

In too many of our higher schools domestic art is represented through merely technical instruction in sewing, dressmaking, and millinery. Such technical courses in these three subjects alone have but slight

educational value and together constitute but a minor interest in the household arts.

Contrasted with them the shelter phases of domestic art offer a much more important field for investigation and study. This subject-matter should include the artistic problems belonging to home architecture, landscape gardening as a distinctive home interest as well as in its broader relation to the development of more general civic order and beauty, interior decoration as a necessary and practical feature of economics in home furnishing, textiles in their various uses for furnishing and clothing, and the vital but too much neglected interests that are rightfully classed as "social consumption" or appurtenances to the higher life.

Properly speaking, household art and science should not be divorced in education as they so frequently are. Each group has its distinct place in the well-organized home, but the household that dwells entirely on the interests commonly classed as domestic science is just as unbalanced as the one that considers esthetics to the exclusion of the important problems involved in food and sanitation.

The application of theoretical training in both groups requires expression in some definite form. If this expression or practical application is to be of such character as to result in appreciably elevating the general standard of living, physically, intellectually, and spiritually, it is necessary that students be prepared to express themselves through these mediums by such fundamental training as will contribute to the intellectual growth that alone makes expression of any kind possible. For this reason it is essential to determine definitely first, the material out of which our substructure should be built, and secondly, the elements entering into the superstructure.

Home Economics properly includes all phases of household art, household science, and household administration. Throughout the country domestic science is better organized than domestic art. In most colleges a marked differentiation is made in the standard for entrance requirements to these different groups of subject matter, stricter requirements being exacted of the students electing domestic science. From an educational point of view this condition is most unjust, for distinguished accomplishment in either line depends on much the same kind of preparatory training. This fundamental drill should supply the requisites to expression of any kind; namely accumulated knowledge born of experience or acquired through study, the habit of reflection, and the power to reorganize material.

When we take into consideration the modern conception that is slowly gaining favor of woman's economic responsibility, it is as necessary that she be trained to apply consciously and intelligently the rules of scientific management to the expenditure of the income in the house-keeping business as that man shall understand the economic laws of producing wealth. All the factors properly listed under domestic art are of peculiar interest to women and also have a tremendous economic significance.

Let us consider briefly the following propositions in their relation to this class of education:

1. *Domestic art education should be built on an economic basis.*—In general economics we readily recognize man's relation to the great activities of production and distribution, but so far few of us have acknowledged the important function of the home, the so-called woman's sphere, on controlling both these fields through the demands created by the field of consumption. In the business world systematic management and order are essential to any degree of economic wellbeing yet how few people seem to relate the parts of home making with the economic principles involved in other forms of successful business management. Indeed home making is a business second to none in importance or in the variety of its interests, therefore women should consciously understand economic laws as they are applicable to art expression and scientific management within the home.

2. *The physical and biological sciences cannot be properly separated from it.*—Next in importance to her economic consciousness it is necessary that women be trained in certain forms of exact knowledge. The need of this is threefold; because of the mental training acquired, because of the fund of classified knowledge accumulated, and for the purpose of developing method in constructive processes. For this kind of training the sciences are invaluable and are inseparable from the various interests involved in household art; therefore we need gradual, solid training along scientific lines, always keeping in mind the basic economic idea. But scientific training alone is not sufficient, which fact brings us to the third proposition:

3. *All constructive expression depends on a thorough knowledge of the principles of art.*—Again let me repeat that good art is an economic asset and that as such it has a vital relationship to the wise expenditure of the income. All students should have a working knowledge of at least freehand drawing, design, and historic ornament as they are related to construction before the technical constructive work is attempted.

Lack of interest in art training as fundamental to all constructive work is a short-sighted policy for two reasons: First, the processes of technical education are greatly prolonged, and second, the results with few exceptions, explained usually by the presence of native artistic feeling, are mediocre. You will frequently hear the excuse made that women possessing the artistic temperament cannot be scientifically trained. This is not true. The artistic person seldom takes to science for the sake of science, but let her realize the application of scientific material to the constructive problems of her art and you have her profound interest. Moreover it is easier to train the artistic temperament in scientific knowledge than it is to give the average scientist an artistic temperament. In some of our colleges we are putting in chemists to teach cooking—why not put in artists with the pre-requisite scientific training to teach household art?

4. *Technical skill should be rather the result of this training than the chief aim.*—The idea of developing the practical is the keynote to much of our inefficient industrial education because of the popular narrow conception of what practical education is. In the majority of schools technical practice is over-emphasized as practical education and is introduced too soon. Constructive processes in the main should come last because they depend for successful development on foundation work leading up to them. How can a student give concrete form to an idea when he has not the concept of what he wants to express? Yet in much of our industrial education this is what we are demanding, and this is why we are often failing in our results. One of the reforms most needed is the determining of the proportions of artistic and scientific training needed in their proper relationships to the technique required for constructive work. At present there is too little of the former and too much of the latter.

5. *The cultural and social value of training in domestic art.*—Character building is to a large extent developed within the home, the atmosphere of which reflects the sum total of the individual habits or the family. If this phase of Home Economics were more carefully considered, home training through rightly directed activities and social occupations would tend to eradicate many of the present social evils that debase or mar our social fabric. Social reform begun with the child must be more effectual than the veneer of reform that may be applied later. Here we have tremendous opportunities for the thoughtful directing and conservation of social and moral energy through the understanding of the relation of esthetic expression to the spirit of play,

as they form themselves into various phases of social experience. The idea of "social consumption" describes this field and suggests its economic significance. It includes the interests of general education; music, the greatest social unifier, literature, games, art as in the form of pictures, entertainment, travel, gardening, and outdoor life. These activities are entirely practical, for they materially raise the general standard of right living, and the direction of them added to the more material phases of domestic art means that women who administer the affairs of the home efficiently and nobly must have comprehensive vision and trained minds both economically and socially.

As a matter of fact the field of domestic art is so inclusive of practical and cultural knowledge that it is hard to know where to draw the line. For this very reason it seems deplorable that so many schools do not make more of the opportunities offered; therefore we shall take this opportunity to suggest some criticisms noted in an investigation of the work as it is being done at the present time in many institutions.

It has been my pleasure to investigate carefully the work of a variety of domestic art departments throughout the country. A questionnaire sent out has furnished much information from thirty institutions of which five were universities, thirteen colleges, and twelve normal schools of good standing. These institutions are distributed throughout twenty states and all list domestic art courses.

In the first place, most of them make a marked differentiation in the educational value of the domestic science and art courses and almost without exception the former is better established.

With reference to entrance requirements the qualifications are by no means adequate. Of the thirty only ten require any physical or natural science for entrance while nine make such subjects optional. In history and elementary economics only five require the latter and ten the former, while three make economics optional. In the fundamental art subjects, six require freehand drawing, one makes it an option, three require mechanical drawing, and only one requires any knowledge of the principles of design. In technical training one requires an elementary knowledge of sewing.

Going a step further and considering the actual domestic art courses as they are formulated, we find that of these same thirty institutions only nine require any natural science and only eight any physical science as part of the course. Only five require general economics, nine give parallel art training, and all emphasize the technical work of sewing. In this enlightened age ten, or $33\frac{1}{3}$ per cent. of these schools

still teach the model system, and I notice one that gives a course which "deals with the history and manufacture of needles, pins, machines, scissors, and tape measures." We often wonder why people express belief that domestic art has no educational value. Right here we have one reason. So often time is spent on non-essentials and the material really worth while is ignored. When we are studying chemistry do we first investigate the history of the test tube, and in domestic science do we give a course in the history of the carving knife and other implements used? If people feel an individual interest in these articles and if they are fairly intelligent they can investigate such items independently and not consume valuable class time in this way.

Another point that I wish to make is that at present there seems to be no definite agreement, with reasonable modification of course, as to the characteristic domestic art courses and the pre-requisites that should lead up to each. For the sake of clearness I will indicate the points under this head in outline form.

Status of domestic art instruction in 30 institutions, with recommendations as to pre-requisites.

SUBJECTS TAUGHT.	NUMBER.
1. Hand and machine sewing..... a. No pre-requisites. b. Elementary textiles, freehand drawing, and first principles of design should be pre-requisite.	30
2. Dressmaking..... a. Pre-requisites listed: Color, drawing, design, textiles, decorative needlework Drawing, watercolor, costume design..... Textiles Applied design..... Drawing..... b. Art work that should be pre-requisite: Drawing, design, color, textiles, decorative needlework, historic ornament, costume design.	30
3. Textiles..... a. Very elementary..... b. Chemistry and microscopic..... c. Weaving..... d. Basketry alone..... e. Develop laundry methods and theories for application (good progressive step).....	21 13 6 8 6 5

Status of domestic art instruction in 30 institutions, with recommendations as to pre-requisites—Con.

SUBJECTS TAUGHT.	NUMBER.
4. Millinery.....	21
a. Pre-requisites listed:	
Color and design.....	2
Elementary sewing.....	2
Tailoring—(absurd).....	1
b. Good work in millinery depends absolutely on good, conscious feeling for artistic expression.	
5. Methods and practice teaching.....	14
6. Pattern drafting.....	13
a. In this age of good mechanical patterns pattern drafting, except for trades courses, is undesirable.	
7. Reading and adaptation of patterns.....	3
a. A good step which should be more generally followed.	
8. Home furnishing.....	11
9. Interior decoration.....	7
10. Decorative needlework.....	15
a. One requires millinery as a pre-requisite (why?).	
b. Only five require previous art training, though good work in millinery depends on art feeling for good form and colors.	
11. Tailoring—(belongs in trades courses and not in general domestic art courses.).....	5
12. Costume design.....	5
13. Parallel art.....	9
14. History of costume.....	5
15. Household economics and management.....	5
16. Home architecture.....	5
17. History of ornament and art.....	2
18. Landscape gardening.....	2
19. Social consumption.....	1

A SUGGESTIVE OUTLINE.

Domestic or household art is interested chiefly in two of the three fundamental needs of man; namely, shelter and clothing. These two main groups may be best studied in their natural divisions of organized interests such as landscape gardening, home architecture, home decoration, home furnishing, social consumption, and administration.

To point out the educational value of such study and the various phases of interest embodied in it let us observe the following outline which is merely suggestive and not by any means complete:

SHELTER—MAJOR INTEREST IN DOMESTIC ART.

HISTORICAL.	ECONOMIC.	SCIENTIFIC.	ESTHETIC.	CONSTRUCTIVE.	SOCIAL.
<i>1. Landscape Gardening.</i>					
Development of types, relation to architecture, etc.	Cost—Building, maintenance, civic and home value.	Botany, horticulture, sanitation, etc.	Design. Decorative use of plants and flowers.	Methods of planting and cultivating.	Civic. Individual and home.
<i>2. Home Architecture.</i>					
Types and adaptation to modern use for homes.	Cost—Building materials, repairs, maintenance, etc.	Heating, lighting, sanitation, etc.	Design in floor plans and structure.	Structural principles.	Arrangement of rooms for social use and convenience.
<i>3. Decoration and Furnishing.</i>					
Art history. Relation of furniture types to architectural types.	Economy of good form, color, and various types of material.	Health considerations.	Application of art principles.	Processes.	Relation to social activities.
<i>4. Social Consumption.</i>					
History of art. Historical relation of folk songs, stories, music, and other arts.	Economic value of the arts, especially music as a social centralizing power.	Apportionment of income for items of social consumption.	Relation of esthetics to social and play spirit in home and in communities.	Provision for music, literature, games, and expression of social arts in the home and community.	Practice of arts and appreciation of them as social forces in wholesome living.
<i>5. Administration.</i>					
Knowledge of principles of economic laws. Institution of home.	Problems of income, etc.	Household scientific management and mechanics.	Conservation of money, time, energy, and commodities.	Methods of management.	Orderly living.
CLOTHING.					
History of textiles and costume.	Relative income, problems of production and consumption.	Biology, physiology and hygiene, botany, and textile chemistry.	Relation of art principles in line, color, etc. to construction.	Pattern making, hand and machine sewing, etc.	Appropriate use from point of climate, health, occasion, age, income, etc.

The ethical and cultural results should be to raise the general standard of living through appreciation, trained taste in the laws of order, beauty, and economics, efficient living through the power to exercise scientific judgment, and put it into practice through scientific management on matters of shelter and clothing.

HOUSEHOLD ART FROM THE STANDPOINT OF ECONOMICS.

MISS GERTRUDE VAN HOESSEN.

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The plea for the introduction of a course in household art must be made as general as possible if it is to be accepted by the faculties of our colleges. In presenting this plea we may distinguish between three types of economic activity: The first, in the narrow sense of the producer who makes a commodity for the market; the second, that broader type which occupies the attention of the distributor who handles the finished product and sees that it is brought to the attention of the consumer; and the third and more comprehensive economic interest belonging to the field of the consumer. The breadth of this last class can perhaps be most emphatically brought out by the fact that the producer and the distributor are consumers also. In the matter of textiles this general class includes every member of society.

This general analysis of the economic interests which attach to the textile industries make it clear that if we are to organize a broad general course for college students we must push into the foreground the economic interest of the consumer. The interest of this class is first of all in the quality of the goods which he consumes and in the proper service which different types of goods may render him. This knowledge of quality and service is by no means easy of acquisition by the modern consumer. He is so far removed from the source of supply that he is not aware of the essential characteristics of the fabrics which he inspects. He needs to have methods of investigation which will make it possible for him to examine the fabrics minutely and effectively with regard to their composition and durability. It is interesting to note at this point that the broad interests of the consumer can never be properly conserved until he has acquired in some measure an insight into the processes that are known to the producer. Because society has separated these two types of

activity, our educational system must supply a scientific means of bringing back to the consumer the knowledge which he needs for his own protection.

If we begin with the general interest of the consumer as the justification for our standpoint of attack, we lay at the same time a broad foundation for later vocational specialization. If the student, in addition to protecting himself in the purchase of goods, wishes to become an intelligent consumer and producer, he has only to continue in more detail the type of study to which he has already been introduced.

Thus far we have been discussing what might be described as the direct educational advantages of a general course in household art. There is another and perhaps broader consideration which would justify such a course in the interest of the general study of economics. There is no body of concrete material which is more available than that which would be presented in a course in textiles for the general study of all economic relations. We have come to recognize in all our educational activities the general principle that the student must comprehend abstract relations by first mastering certain typical concrete relations. The various matters which have been discussed in earlier paragraphs need to be exemplified in a concrete way if they are to be understood by the student. The interdependence of the consumer and the distributor, the necessities of legal protection of the consumer in his relations to the producer, can be brought out in a very definite and concrete way as one studies the problem of clothing himself, economically and satisfactorily. Hence a general course in textiles, as one phase of household art, becomes the medium through which the student may be introduced to all sorts of economic relations.

Most of the textbooks on economics now used in college classes use illustrations which appeal chiefly to men. This is undoubtedly one of the reasons why college women manifest, in general, less interest in this subject than do the men. If the study of fabrics could be made the basis of a course in economics it would serve to arouse a broad general interest in that science. One might very properly advocate the use of this material for both men and women.

Having thus outlined in an abstract way the advantages of such a course in household art as an introduction to both the practical relations of life and the general study of economics, we may suggest a few typical examples of the lessons which may be formulated to make up such a course.

The demand for pure fabrics made from the four principal fibers of commerce, wool, cotton, silk, and flax, has long since outgrown the world's supply. It is a well known fact that if all the wool produced in the United States yearly was divided equally among its people, each person would receive less than a square yard of cloth. It is therefore as well to recognize the necessity for substitutions and by means of investigation become intelligent as to the qualities requisite for specific purposes. The desirability for such investigation may be apparent from the following occurrences which constantly happen in our daily contact with fabrics: (1) Dark spots appear on some worsted fabrics after a few days wearing; (2) the following fabrics have a tendency to tear very easily:—(a) Cheap India linen, (b) white linen for a waist at \$1.00 per yard, (c) woolen dress materials from 75 cents to \$1.00 per yard, (d) light colored silks; (3) (a) the white spots drop out of blue and white calicoes and lawns; (b) the white spots drop out of black and white checked silk; (c) the spots drop out of dotted muslins; (4) silk splits on the folds; (5) broadcloths tear easily and serges do not; and (6) gray wool fabrics generally fade, even when expensive.

Most of the processes in the manufacture of fabrics from the kind and preparation of fibers to the general practices in finishing would be required to account for the above which are our daily experiences with textile materials. Space will not allow me to answer all of them but let us consider No. 5 briefly:—"Broadcloth tears easily and serges do not." Here we have two cloths which illustrate the fundamental differences between woolen and worsted industries. Broadcloth, the typical woolen cloth, is a cloth made in the finishing. Serge, a typical worsted cloth is a cloth made in the loom. The understanding of these types lies in a knowledge of the manufacture of wool.

From the preceding paragraph it may readily be inferred that the concrete experiences which are necessary to form a basis for intelligent consumption must offer sufficient experimental work with fabrics to establish skill in the identification of standard materials. It must include, first, microscopic and chemical examinations which will result in the ability to (1) identify fibers, (2) detect and identify adulteration, and (3) understand the structure of fabrics and its relation to desirable qualities. In the second place it must include the mechanics of construction consisting of (1) hand sewing, (2) machine sewing, and (3) drafting.

With this body of experience as a basis we come to the larger eco-

conomic problems through a study of the textile industries. In this we come to the study of a particular type of organization, the factory, which we shall approach as we approach the study of any organization such as a bank or a corporation. We study a bank as an economic unit, producing, exchanging, and consuming the products of its particular activities, and its activities in relation to other units of different kinds. We therefore take up the study of these industries in the same way. We begin with the location of factories for special fabrics which we can only understand through a study of commercial geography and industrial history. It is necessary to know the evolution of the textile industries, its relation to general history, and the development of other important industries, in order to understand fully the relation between the present manufacturer and consumer.

In studying the factory as an economic unit, we discuss the history of industrial organization, beginning with the family, the work of different members of the family, and the gradual withdrawal of the work from the family to the factory based on the change from hand to power machinery, the work of women and children in the factories, the effect of this change on the home, the growth of factory towns, the gradual change in the character of the workers in the factories, immigration, wages, legal protection for workers, etc.

As a producing and distributing unit we try to understand the relation between the manufacturer and his supply of raw materials; the effect of this supply upon the processes of manufacture; the markets; the protection of industries as illustrated in the United States and other countries; the effect of wages upon his output; the relation of invention to the development of business; and many other questions which effect the consumer. In this connection there is another type of economic activity which makes a distinct demand upon our interest, although it is in reality but a part of the larger question, i.e., the manufacture of ready-made clothing. With our present social organization ready-made clothing will consume a part of the income of every individual. The same standards of judgment in selection of materials and in the training in construction are applicable to this problem.

In conclusion, whether we believe in technical education is not the great question before us. It is rather whether we feel and realize the complexities of modern conditions and the consequent necessity for scientific methods of work. If once we feel this, the introduction of courses in household art, Home Economics, and definite forms of technical education will be accepted in our colleges without question.

DOMESTIC ART, ESTHETICALLY CONSIDERED.

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Without attempting discussion concerning the ultimate nature of the beautiful, it may be affirmed at once that the beautiful is a phase of the good, and since we cannot live without God (good) in the world, neither should we attempt to live without the beautiful. One reason for the disagreement of authorities on a definition of the beautiful is that its phases are so multitudinous. There is a beauty of tone, of speech, of manner, a beauty in the well-ordered home where economic fitness goes hand in hand with the esthetic. One may exist without such influence, just as one may exist without appreciation of the humorous, but such a life is incomplete.

The teacher whose province it is to teach, more especially within the sphere of the esthetic, frequently finds it uphill work. In some schools, entrance upon the study of domestic art means beginning immediately creative expression. Students come, perhaps, without preparation, but they are ushered into the course as if fully developed and equipped.

With a view to obtaining information with regard to pre-requisite training in art for students entering upon a course in Home Economics, also as to art work for graduation, thirty representative institutions were investigated. These schools, with but six exceptions, require no pre-requisite art training for admission to courses in domestic art. Six demand satisfactory freehand drawing and hand sewing, one design, while two universities report "we do not teach the art side." Another says "we stress the technical side." Six institutions give fairly good courses in design and applied art, but only one of those investigated gives an adequate course including drawing, design, historic ornament, lectures on historic phases, esthetics of form and color, interior decoration, and costume design. We also find work in the following subjects offered in domestic art courses: Household decoration, basketry, leather work, block-printing, stenciling, dress-making, millinery, etc. These subjects are catalogued for the most part as applied art, but are usually given without previous training in design. In none of the curriculums investigated, does one find adequate pre-requisite art training demanded for admission to the courses.

A knowledge of general history, of art history, historic ornament, a working knowledge of the principles of composition and design, an appreciation of color harmony, together with practical work in physics and chemistry, should be regarded as fundamental, and should precede and not parallel courses in domestic art.

Our preparatory training is too specific. The acquiring of cultural and informational knowledge is made too subordinate to the acquiring of technical skill.

If, as Professor Raymond tells us, "The art product is traceable to man's mental experiences and the elements of which it is constructed are forms borrowed from nature, and the method of construction and composition is a process of elaboration," how can the student, with inadequate fundamental training, be expected to have had sufficient mental experience to furnish material for elaboration? Rather is the student admitted to a course of study involving creative expression, with hand, eye, and perceptions untrained, as prepared to solve the problems which confront him as is the student of the scale of C prepared to go on the concert stage.

In literary work one must have, in addition to natural capacity, an amount of mental furnishing; just so is this true in the field of esthetic expression. One cannot represent in line, shade, or color what one has no conception of. The literary romancer, even, is a transposer from the real. In all creative subjects such transposition is obligatory.

With a well rounded course of study, the student would not only be prepared to create, but create something worth while. It may be argued that, if necessary time is given to acquire this fundamental information, the age of production will be advanced, but would it not be well to give time to a course of study that will so greatly increase efficiency? Would it not be well for the various institutions giving courses in domestic art to unite in demanding as a pre-requisite fundamental training along art lines, looking forward toward a standardization of the requirements for admission?

Education, as the etymology of the word implies, is to bring out, to educe capacities, this being accomplished by a system of eclecticism of the fit, and an elimination of the unfit, in thought and action or construction. In default of this educative system, the universal impulse to action may run more or less riot in the field of possibilities, but with proper training in fundamental principles, the foundation is laid for right thinking, and through right thinking, for right living.

Bacon says the man who builds his house in an unattractive locality puts himself in prison. This being accepted, it follows that one's house and immediate attaching space, howsoever attractive, do not constitute home. One's first and primary affections naturally center in the "house" and its immediate companionship, but the civic environment is also one's own, to be happy in and to assist in making. When Bacon wrote, every English hamlet represented a restricted unit, but since his time conditions have so broadened that the line of environment is no longer defined. As in the well ordered man, there must abide a pride of personality, a pride of race, so must there be a pride of nationality. In going over this broad land, from one city of beautiful structures to another, there comes to the right kind of an American a feeling of pride and ownership. There is an exultant consciousness of being a share-holder in what is beheld. This broad land is home.

What a scope for enterprise this outlook presents to ethical and esthetical parents and teachers!

Civilization in this country was not in a day created and set up by present incumbents, but has been largely transmitted. We enjoy much that cost us neither thought nor effort, thus bringing us in debt. This debt cannot be paid directly, we cannot even express gratitude to the transmitters, but, as nearly as our capacities will admit, we may pay this debt to each other and to the oncoming citizenship.

DOMESTIC ART METHODS OF TECHNICAL INSTRUCTION.

MISS RUTH WILMOT.

Pratt Institute.

Teaching can be vitally interesting or a stupid grind. It can be great fun or hopeless drudgery, according to the way we go about it, and it is often in the small points that the difference lies. As it is quite impossible in a twenty-minute paper on methods to deal at all comprehensively with the subject, I have chosen for discussion three specific salient points: First, the importance of the content of the student's mind; second, the necessity of a judicious and balanced choice between formal instruction and individual attention; and third, the relation of methods to the acquisition of technical speech.

As to the importance of the content of the student's mind, in the last few years the question of methods has been so strongly emphasized that many times they have become more or less cut and dried recipes which obtained results good but necessarily limited, while the necessity of the intuitive understanding by the instructor of the workings of the student's minds has been more or less overlooked. In the effort to improve her methods, the instructor goes into class to give a lesson with a carefully chosen plan in mind for its development. She is so concerned with the importance of the thing she is going to teach and the way she has decided to teach it that she forgets to feel the pulse of her class, as it were, and adjust and change her excellent plan to suit the needs and come within the comprehension of her students. Instead of concentrating on what is going on in the students' minds and determining whether they are comprehending the information which she is giving, she is thinking only of the subject she is going to teach and its development in a way that seems logical. She does not realize that what seems logical to her may seem quite the opposite to her students, nor that the subject which she understands so thoroughly, may be to them quite new and complex. To make it clear to them she must exert her imagination and look at it from their point of view. The details seem so simple to her of making a button hole, of getting the two sleeves for different arms each in its right armhole in the proper way, of making one sleeve look like the other, or of making the bias binding on the brim of a hat lie flat, that she can scarcely realize that her students find them just as puzzling and trying as she did when she first undertook them. So she tries to give instructions without laying the proper foundation, without getting together ideas in their minds to which to tie up their new ideas. She uses words and terms which mean nothing to the uninitiated student. She neglects to explain the reason for things because to her they seem obvious. She often entirely forgets to explain a few very minor details, and as a result the student very naturally makes a mistake and the instructor is surprised to find a girl so lacking in common sense.

If the instructor could go into class with her subject matter so thoroughly in hand that she could put her entire attention on the content of the students' minds, she would undoubtedly avoid many unfortunate mistakes. To put it in terms of psychology she should concern herself more with the apperceptive mass of her student. It requires a great deal of intuition and quick wit to get at the students'

point of view in the very beginning of the lesson and let that determine the method of development of the subject. The teacher who is versatile enough to change her line of attack to suit the occasion gets into her work a vigor and vitality which she could never attain by following a prearranged plan, no matter how logical it might be.

This same intuition or ability to look at the work from a student's point of view serves to warn the instructor of the right psychological moment to give the encouragement which a student needs to get over a difficult place. As a general rule constructive work for the beginner is done under rather high nervous tension. Failure to recognize and relieve this tension may bring about lamentable results. If we could call to mind the way we ourselves worked to get one side of that evening gown to look like the other or how hard it was to twist those wretched little tie wires tight in just the right place, I feel quite certain we would have distinct recollection of tired backs, flushed, burning cheeks, and cramped hands. Many of our students are feeling just as we did way back in that time when we were learning how. A little relaxation at such times is invaluable. Perhaps all the student needs to relieve this tension is to clear the table, wash her hands, get a drink, or rest her eyes by looking out of the window for a moment. Sometimes it would be better for her to put away that difficult piece of work which she has struggled so hard over and take up something else. After she is rested and her eyes and mind are fresh she can go back to the difficult thing and get it right.

There are times, too, when work gets in such a hopeless muddle that the student scarcely has the courage to tackle it. A very little help, sometimes only the trimming off of ragged edges or putting in a pin or two, may give her the necessary impetus to begin again and get it done. Students are very apt to "putter" and fuss around these difficult bits of work instead of attacking and finishing them. It is often a great temptation to the instructor to avoid the student who gets her work into a hopeless looking mess and to help the one who is working successfully to put on those finishing touches which are so easy and agreeable to do. This is not only unfair to the student in trouble but to the successful worker, for she is deprived of the great fun of doing the effective and interesting thing. She may not do it so well as her teacher, but nevertheless she should have the experience and fun of doing it herself and of doing it the best she can.

There is of course in every class the other extreme of the nervous student, the listless one who sits back on the end of her spine. Here

too the right kind of encouragement is most valuable, for it may furnish the necessary stimulus to more vigorous work.

This study of individual student needs and the experimenting in methods which comes as the result of the recognition of these needs makes teaching an immensely interesting business. The instructor begins to get very enthusiastic, and as a natural result she communicates her enthusiasm to her students and her teaching acquires the vigor and vitality necessary to good constructive work. We all know that we do our best work only when we have joy in the doing. We may do good work without enthusiasm for it, but it is not our best unless we love it. Interest and pleasure in doing things increase concentration and a gain in concentration is always a gain in efficiency.

To sum up the first point: More careful attention to the content of the students' minds results in more successful adaptation of subject matter and method to students' capabilities, the understanding of, and so the ability to help, the student who needs encouragement, and increased interest on the instructor's part resulting in greater enthusiasm in the class.

The second point is the question of the judicious balance and choice between formal instruction and individual attention. This presents many interesting problems. Formal class demonstrations are very valuable in giving general ideas, or a general view of a problem as a whole, but as a means of giving definite directions for working, the method has many drawbacks.

The greatest difficulty we all experience in doing things is not in understanding what the result should look like, but in grasping the way in which we are going to get this result, how to manage our tools, how to hold our material.

In giving a class demonstration as to directions for work, the instructor is often obliged to use her hands and hold her work in an unnatural and cramped position in order that all the students in the class may see what she is doing. In consequence they get a good idea of what the result should be, but a very awkward and clumsy idea of how to attain this result. Then they go to work in the most inconvenient way possible, the instructor interested in results fails to see and correct improper methods of attaining them, and the student acquires a faulty technique.

Again when a class demonstration is given, the students as a rule lay down their work and give their entire attention to the instructor. When they go back to work they often find to their great chagrin

that the directions which but a moment ago seemed so clear to them are only very vague and hazy in their minds. They find they cannot go on without special attention from the teacher. If they could have had their work in their hands and imitated her as she gave the directions, they would not have found this difficulty. Such imitation, however, is not often practical.

When imitation is not possible, the student's need of individual attention can be met by the use of illustrative material accessible to the class throughout the lesson and showing each step in the development of the problem.

Class demonstrations as directions for working are of value only as they are accompanied by adequate illustrative material, or as they allow the students to do the work with the instructor as she gives the directions. When it is impossible to prepare such material or practical for students to work with the instructor, better results are obtained by demonstrating to the class in groups small enough to enable the instructor to give individual attention to each student and to see that she goes to work in the best way and goes at it immediately.

The third and last point which I wish to bring out is the matter of speed. Speed in process, such speed as has special commercial value, is of course almost purely a question of practice and for this reason has very little educational value. Because of this and the time limitations, such speed has little chance for development in schools of college grade. There is, however, another kind of speed the development of which is a very important function of this school, for it is a kind of speed of the utmost educational value, a speed which is the result of wise planning of work, decision in judgment, and economy in movements.

Unfortunately the instructor does not often realize the importance to the student of practice in planning work. Instead of giving a general idea of the whole problem first, thus affording the student an opportunity to make some plan for the sequence of her work and then giving the direction for the details as need arises, she begins with the parts and doles out her directions piece by piece until the problem is finished. The student is unable at any time to see the problem of the work as a whole and because of this fails to see the details in their proper relation and value. Consequently she does not make a wise and economical plan of procedure, or indeed any plan at all.

Another great loss in speed is caused by an over-emphasis on perfection of technique. The student feels that she must reach very high standards of perfection, so immediately becomes apprehensive, worries for fear she will not do the thing well enough, starts to do it and takes it out, in other words "putters" instead of going at it with decision, doing the best she can and then improving on it the next time. This habit of "puttering" grows. If it is in sewing she takes a few stitches, looks at them, takes a few more and looks at them, and then decides to take them out and do it over. This interrupted work does not make for perfection of technique and lowers her speed to an appalling degree.

Informal class discussions which arise from the needs of individual students are of great value in developing good judgment and decision. If one member of the class needs help on any particular detail it is often well worth while to stop the rest of the class and get their opinion on the best way of doing the thing. They should be encouraged to suggest and decide for themselves, and if their suggestions are not good, they should not be discouraged and made to feel that they are quite lacking in ordinary intelligence. The instructor should simply explain why their way is impractical and hers a better way. Students should always be encouraged to think things out for themselves and to use their own judgment. Good hard common sense and good judgment are such valuable assets in any kind of constructive work, that no opportunity to allow them to develop these qualities should be neglected.

A third and very easily remedied loss of speed is caused by the use of inadequate or improper tools and by awkward, unskillful muscular manipulation.

These are only three of the many points which grow in importance as experience in teaching broadens. There are many others which have also a direct bearing on the vitality of technical instruction, and successful technical instruction is that which to instructor and student alike is vital.

DISCUSSION ON ECONOMIC AND SCIENTIFIC PHASES.

MISS ANNA F. BLOHM.

Ohio State University.

There is a very close connection between the economic and scientific phases of this work. To deal with textiles from the economic point of view would be impossible, for instance, without a knowledge of chemistry.

I have been very much interested in the different courses in textiles which are being given and this year I visited a number of schools for the purpose. Frequently I would expect a discussion along chemical or scientific lines but I would find the pupils weaving. Weaving was given as the textile work, but when it comes to the more advanced ideas of the subject it is not what we are aiming for, which is the economic point of view.

A suggestion for two years of chemistry in the course seems excellent, though it is one that we find in very few of the universities.

Occasionally we find an organic course required. It seems if we are going to introduce dyeing into our course, a knowledge of organic chemistry would be almost indispensable, as otherwise it would be arts and crafts work.

So long as we have to begin domestic arts work in the colleges and universities our work is not going to progress so fast as we would wish. We must require it in the grades and high schools. Otherwise we have not time for the economic side of the work, or for the chemical side which we must introduce into the colleges and universities if we want our women to be university and college women. We cannot give all of our time to even the technical and scientific phases. We must have opportunity for English and history, which have a very vital connection with the study of industrial conditions. We must have economics; we must have art.

The art department is entirely distinct from the household decoration, and in some of the large schools it is surprising to find how little pure art is required. At Ohio State University we require two years of art and two years of chemistry, and we feel that we could not possibly do with less. We do not stress the technical work; rather the educational phase, so to speak, with the emphasis upon the scientific, the economic, and the art phases of the work, with the technical phase reduced to a minimum.

DISCUSSION FROM THE FLOOR.

Miss Craig.—With reference to the difficulties met in the technical courses may I say that if a girl has a clear working idea of what she is going to attempt she will have less difficulty. That is why fundamental art work is so valuable. It trains in constructing working plans. This method also economizes time. It relates the art expression with scientific method, and when girls with the artistic temperament see the connection between these two classes of work in the application and that scientific interest is a part of all good creative work they take more kindly to the scientific and technical work. They should also have it for the sake of balance.

Miss Cooley.—It is time to take more active interest in the art phases of domestic art.

Miss Bevier.—I do not feel that I have a contribution to make except to say that the art side has been one of the most difficult ones that we have worked out. We have had, at the University of Illinois, for the past two years much better expression from the art department, but the field seems to me to be almost untouched.

I have one other thing to say, and I pass it on for the domestic art people to work for. There is a feeling that the art side does not have due representation among us. I feel that we get sometimes, at least, the things that we go after; and that if science has a better showing in Home Economics than art has it is because somebody has worked harder for science than somebody else has worked for art. The responsibility therefore is upon the art people to improve the definitions, to improve the product, to feel the responsibility.

Mrs. Anna Gilchrist Strong.—The public schools of Cincinnati require a great deal of art work, consequently every domestic science and art teacher must be trained along that line. We have a two years' art course—the first year in pure design, the second year in costume design, house decorating, and other applied design. We find it very useful and even the girls who are not artistically inclined take to it.

Mrs. C. W. Foulk, Ohio State University.—I have been very much interested for some time in domestic science and art. I was a teacher of the science and formerly could see very little on the art side; I thought there was not much to teach. After having a home of my own I found that there were big problems, and now if I were going back into the work I should be undecided which to take up. I think

the reason I had no appreciation of domestic art was because of the way it was taught to me, as merely sewing and pattern-making.

Mrs. J. W. Shaw, Ardwick, Md.—I have charge of the domestic science work in the colored schools and I have been particularly interested in this meeting because of an experiment I am making in connection with the Armstrong Manual Training School. A few weeks ago we rented a small house near it. I have been fortunate in getting the drawing teachers and the sewing teachers interested in this little home and whenever any question comes up on decorating or doing the carpentry work or the gardening, I appeal to these special departments. Although I am outside the art work I have been trying to get the domestic art teachers interested in it.

Miss Craig.—One of the problems that we must meet in the near future is that of real correlation and unification, by working out relative values in the factors entering into Home Economics. Is there any one who will speak to this proposition?

Dr. W. A. Hedrick.—I have been interested in the teaching of physics for a number of years, and I have been having experience which would be of benefit to the girls interested in this work but I have found only two or three applications. For instance, we have sets of experiments determining the strength of cotton, but we find that in such materials as cotton there is such great variation that we cannot do much. There are, however, many experiments which come to my mind of great interest in domestic art.

Mrs. O. N. Guldlin.—I may say I am delighted to hear of this movement for applied chemistry in household art. I have been a housekeeper for twenty-two years and realize the necessity of it.

Miss Van Rensselaer.—I should like to say a final word. We have a body of teachers here who are interested in domestic art. We have just heard from Mrs. Guldlin, chairman of the Home Economics section of the General Federation of Women's Clubs. Why should we not unite at one point, at least work together? We should ask for pure textiles, just as we are asking for pure foods. Why should we not have from this meeting a resolution in the interest of this movement?

Mrs. Murphy.—I move that we ask the resolutions committee to embody a section relating to pure textiles.

Mrs. Guldlin.—I second the motion.

The motion was carried, and the resolution was subsequently adopted.

WHAT SUBJECT MATTER SHOULD CONSTITUTE A WELL BALANCED COURSE OF STUDY IN DOMESTIC ART?¹ ✦

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Texas.*

The purpose of this brief discussion is to suggest the subject matter for a well balanced course of study in domestic art, and the method of accomplishing the aim set forth.

For many years investigators and teachers have made a systematic study of those sciences pertaining to food and nutrition. As a result of these experiments and investigations, domestic science is comparatively well established in industrial education. In the mind of the general public domestic art is a comparatively insignificant course, often listed as a minor topic under domestic science. What is the cause of this general opinion? The same sciences—biology, physiology, and chemistry—that form the foundation of domestic science also enter into the superstructure of domestic art. Yet though the significance of this fact is beginning to be recognized throughout the country, the majority of the schools are still adhering to the primitive content of study—sewing, dressmaking, and millinery—and are blindly pursuing it through the approach of least resistance, the sole aim of which is technical skill.

Since there is so much confusion in the minds of our educators regarding the content of subject matter in domestic art the definitions of the two words “domestic” and “art” are very pertinent:

“Domestic” means belonging to the household, “art” is a systematic application of knowledge or skill in effecting a desired result, especially in the production of the beautiful by imitation or design. From these definitions it is obvious that a well-balanced course must include other than mere technical interests which have but slight educational value. Contrasted with them are the shelter phases of domestic art. The numerous interests included in the subject matter should be approached through the artistic and practical problems pertaining to the home, its location, structure, decoration, and furnishings. The results of these existing conditions create either the desirable or undesirable home atmosphere. Landscape gardening

¹ Presented at the Christmas meeting of the Texas State Teachers' Association.

is an important and distinctive home interest which should be stressed on account of its broader relation to civic order and beauty.

Domestic art is applied art. In order to receive appreciable results in this work, a certain amount of art training provides that prerequisite medium which contributes to intellectual and spiritual growth, both of which are absolutely fundamental to constructive expression.

Textiles in their various uses for furnishing and clothing should be studied from the historic, scientific, economic, artistic, and ethical standpoints. Textiles should be approached historically. There is no surer method of arousing interest in any subject than by studying its history. The historical association coupled with the distribution, growth, structure, and preparation of the chief textile fibers more readily fastens these facts in the mind. The evolution of the textile fabrics is closely identified with the origin and development of the mechanical inventions which have revolutionized industrial and social conditions. With this historic setting the scientific field of textiles offers a rich field for investigation, and its value cannot be easily overestimated.

Women are the chief consumers of the textile production. Through ignorance of adulteration of textile fabrics on the part of these consumers, there is an enormous waste in the expenditure of time and money. Not until recent years has textile experimentation been systematically followed. It is to the science of chemistry that we owe the production of our beautiful fabrics so rich in color. It is also by this same science that we are imposed upon, to such a great extent, with the adulteration of materials. Objections cannot be raised against certain kinds of adulterations because the average buyer cannot today afford the pure fabrics, nor are they more desirable in many cases. But why should the consumer pay an all wool price for a piece of material when it proves to be one-half or three-fourths cotton? Why should she pay one dollar and fifty cents per yard for taffeta silk and receive a small amount of silk and a large percentage of metallic salts, etc.?

Some very interesting experiments have been carried out in this line in the textile course at the College of Industrial Arts this past term. Almost without an exception the 125 juniors taking the work have grasped the tremendous economic significance of this situation. By numerous simple tests they have realized there is economy in the selection of color in household furnishings and clothing as well

as in the fabric itself. Because of the characteristics of certain textile fibers they have found that it is more economical, in the long run, to pay a higher price and receive a better material. The processes of cleaning and dyeing are important features of this scientific phase which should not be neglected.

Having approached the study of textiles through the historic, scientific, economic, and artistic aspects we are ready to deal with the constructive or technical problems. Students armed with this prerequisite knowledge are prepared to consider intelligently such specific problems as decorative needlework and its various forms of application to house furnishings, undergarments, dresses, gowns, hats, pattern alterations, and laundry.

As the work is taught in the schools of this state, as well as in schools and colleges of other states, emphasis is laid only on the technical side. The method so often used in presenting this work is the model system. We do not hesitate to state that it is an antiquated form of instruction.

The following are some of the arguments advanced in its favor: That the learning of the stitches on the "little useless scraps" will arouse "determination, persistence, perseverance, painstaking accuracy, and patience;" that the cultivation of these qualities will awaken an "interest which results in encouragement, pride, knowledge, conscious power, and a good degree of satisfaction." But how much has the student gained of the relative value of materials and uses? What judgment and taste has been exercised? What conscious power has the student acquired when she has not been given a means for expression? What artistic feeling has been developed? Really of what educational value is this purely technical drill which is taught in so many of our schools? Weeks, months, and years are spent in making this scrap book. Whom does it benefit—the student, her family, her community? I speak feelingly on this particular method because my feelings are born of experience. I spent weeks making models. My highest aim was accuracy. I did not develop an atom spiritually, intellectually, or creatively. It is true I gained a knowledge of so many different kinds of stitches, but not at all of their application. Could I not have acquired the knowledge of the stitches and their application on an article that would have provoked a thoughtful effort and resulted in an artistic and practical form?

The application of the theoretical suggestions offered in subject matter can be applied in any grade. The historical view of textiles

may be presented so interestingly as to awaken and hold the attention of the youngest child. For example, the study of the primitive people is abundant in suggestions for textile problems. In the expression of these problems the various kinds of stitches may be employed as a means to that end.

Economy in textiles is a most important feature and should be early impressed upon the young consumer's mind. For instance, if the problem should be the making of a pillow case, the student should be instructed in the kinds of materials used for that purpose; the fibers from which those materials are made; and reasons why some fabrics are more desirable and more economical than others. Then let her investigate for herself the different widths and cost of appropriate materials. By this method she is thrown on her own responsibility and encouraged to exercise judgment and taste in her selection.

The artistic feature of textiles cannot be overlooked, because every article or garment, regardless of its simplicity or purpose, is applied art in form or in color or in both. Any instructor teaching textiles in any form, disregarding the application and being ignorant of art principles, errs unpardonably.

While the scientific phase of textiles cannot be entered into so extensively in high school work, the demonstration of certain simple physical and chemical tests can be performed by the teacher. Light, weather, and sun tests can be applied to colored fabrics, in connection with the laundry, with perfect success. Though these are scientific tests they are also significant economic features in furnishing and clothing which should be emphasized.

To teach the technical problems involved in domestic art without considering the various view-points is comparable to teaching any advanced science without the essential fundamental laws prerequisite to any mental training. Definite results and marked progress cannot be any more anticipated in the former subject than in the latter. To be of value the content of subject matter must be presented in such a manner as to stimulate independence in thought, in judgment, and in taste. Eliminate these principles and you will remove the foundation upon which to build. The student's training should be of such a nature as to enable her to adapt herself to the complex organization of society: to solve intelligently the problems of wise purchases; to raise as well as to adjust the standard of living; to arouse an aspiration to attain the beautiful; and to awaken a broader sympathy and a desire to be of service to mankind.

BIBLIOGRAPHY OF HOME ECONOMICS LITERATURE.

MARY D. S. ROSE.

MAY 1, 1912.

I. FOOD.

Cheese and its Economical Uses in the Diet. C. F. Langworthy and Caroline L. Hunt. *U. S. Dept. of Agr., Farmers' Bulletin* 487.

Cheese—A Neglected Nutrient. Editorial. *Jour. Amer. Med. Assn.* April 6, 1912, p. 1016.

Casein and its Uses for Food. W. M. Seaber, *Sanitary Record*, vol. 49, p. 20. Commercial casein preparations.

The Utilization of Dairy By-Products as Food. *U. S. Dept. of Agr., Farmers' Bulletin* 486.

Condensed Milk. J. F. G. H. Coutts. *British Food Jour.*, vol. 13, p. 181. History, varieties, methods of preparation.

Bacterial Counts and Acidity Determinations of Milk as Delivered to the Consumer, based on a study followed for one year. Schorer. *Arch. Pediatrics*, March, 1912, pp. 200-203.

Cooking and Chemical Composition of Some English Fish. K. I. Williams. *Chem. News*, vol. 104, pp. 271-274.

Salt-Rising Bread and Some Comparisons with Bread Made with Yeast. H. A. Kohman. *Jour. Indus. and Eng. Chem.*, February, 1912, pp. 100-106.

The Ethics of Food: III. Bread. *Science Progress*, 1911, p. 536. Reviewed by W. D. Halliburton in annual report for 1911, *Jour. Chem. Soc.*, London.

Milling Tests of Wheat and Baking Tests of Flour. J. T. Willard and C. O. Swanson. *Kan. Agr. Exp. Sta., Bull.* 177.

Composition of Dry Gluten and its Relation to the Protein Content of Flour. G. A. Olson, *Jour. Ind. and Eng. Chem.*, 1912, March, pp. 206-209.

Acidity of Flour. C. O. Swanson. *Jour. Ind. and Eng. Chem.*, 1912, vol. 4, pp. 274-278.

The Study of Stringy Bread. E. Keyser and H. Delavel. *Compt. Rend.*, vol. 153, pp. 576-578; abs. in *Chem. Abs.*, February 20, p. 515.

2. NUTRITION.

Chemical and Energy Exchange in Sleeping Children. J. Howland. *Zeit. Physiol. Chem.*, vol. 74, pp. 1-12; abs. in *Chem. Abs.*, March 20, p. 768.

Mineral Salts and their Relation to the Dietary of Infants and Young Children. Hoobler. *Archives Pediatrics*, March, 1912, pp. 208-214.

Mineral Salt Metabolism; or, the Uses of the Mineral Salts to the Growing Infant and Child. Editorial. *Arch. Pediatrics*, March, 1912, pp. 161-164.

Dietetic Treatment of Infantile Tetany. Gruelle. *Arch. Pediatrics*, January, 1912, pp. 24-45.

Gastric and Pancreatic Secretions of the Newborn. Hess. *Proceedings of Society for Exp. Biology and Medicine*, vol. ix, no. 2, pp. 20-21.

On Creatin-destroying Bacilli in the Intestine and their Isolation. Twort and Mellanby. *Jour. Physiol.*, March, 1912, pp. 43-49.

Creatin and Creatinin Excretion in Recurrent Vomiting. J. P. Sedgwick. *Amer. Jour. Diseases Children*, April, 1912, pp. 209-216.

Beriberi, Rice, and Beans. Editorial. *Jour. Amer. Med. Assn.*, April 13, 1912, pp. 1118-1119.

Analysis of Rice; Effect of Polishing; Relation to Disease of Beriberi. Experiments reviewed by W. D. Halliburton. Annual reports for 1911, *Jour. Chem. Soc.*, London.

The Effect of a Diet of Polished Rice on the Nitrogen and Phosphorus of the Brain. Funk. *Jour. Physiol.*, March, 1912, pp. 50-53.

The High Calorie Diet in Typhoid Fever. *Am. Jour. Med. Science*, vol. 143, 1912, p. 77.

Digestion in Fever. J. B. Nichols. *Am. Jour. Med. Science*, vol. 142, pp. 93-95.

Diet in India. B. N. Ghosh. *Dietetics and Hygienic Gaz.*, vol. 27, pp. 470-475. Diets for natives and Europeans.

Studies in Nutrition. V. The Utilization of the Proteins of Cottonseed; VI. The Utilization of the Proteins of Extraction—Free Meat Powder; and the Origin of Fecal Nitrogen. L. B. Mendel and M. S. Fine. *Jour. Biol. Chem.*, vol. ii, pp. 5-26.

Metabolism of Development. III. Qualitative Effects of Pregnancy on the Protein Metabolism of the Dog. J. R. Murlin. *Am. Jour. Physiol.*, 28, pp. 422-454.

An Explanation of Hunger. W. B. Cannon and H. L. Washburn. *Am. Jour. Physiol.*, March, pp. 441-455.

Peristalsis, Segmentation, and the Mesenteric Reflex. W. B. Cannon. *Am. Jour. Physiol.*, April, pp. 114-129.

The Putrefaction Processes in the Intestine of a Man During Fasting and During Subsequent Periods of Low and High Protein Ingestion. C. R. Sherwin and P. B. Hawk. *Jour. Biol. Chem.*, April, pp. 169-179.

Protein Metabolism from the Standpoint of Blood and Tissue Analysis. O. Folin and W. Denis. *Jour. Biol. Chem.*, February, pp. 87-95; March, pp. 161-168.

3. HYGIENE AND SANITATION.

Ventilation of a Steam Laundry; Dust in Relation to Health; The Art of Vacuum Cleaning. *Heating and Ventilating Mag.*, vol. 9, March, 1912, no. 3.

On Agar-Agar as a Vehicle in Intestinal Therapeutics. Max. Emhorn. *Am. Jour. Med. Science*, February, 1912, pp. 230-232.

Influence of Oral Sepsis on Digestive Disorders. Geo. M. Niles. *Am. Jour. Med. Sciences*, February, 1912, pp. 217-221.

The Clothing of Children in Relation to Physique and Development. Alice M. Burn and M. B. Edin. *The Child*, March, 1912, pp. 462-467.

Sanitation in the Philippines—Cleaning Up Manila. James Le Roy. *Modern Sanitation*, March, 1912, pp. 93-99.

The Sanitation of Savagery. Herbert M. Lorne. *Modern Sanitation*, February, 1912, pp. 45-52.

Possible Sources of Hospital Infections. Mary Tufts. *Dietetic and Hygienic Gazette*, April, 1912, pp. 246-247.

Certain Fundamental Principles Relating to the Activity of Bacteria in the Intestinal Tract. A. J. Kendall. *Jour. Med. Research*, vol. 25, pp. 117-187.

Chronic Constipation. Dr. Alfred Reed. *Jour. Amer. Med. Assn.*, April 6, 1912, pp. 997-998.

4. TEXTILES AND CLOTHING.

The Value of Fiber Testing Machines for Measuring the Strength and Elasticity of Wool. J. A. Hill. *Wyoming Exper. Sta. Bull.*, 92.

Some Interesting Indian Textiles. *Am. Wool and Cotton Reporter*, April 11, 1912, p. 495. Concerning Indian blankets.

Some Old-Time Wall-Papers. Winifred Fales. *Am. Homes and Gardens*, April, 1912, pp. 122-125.

Real Tapestries: What They are and Something about Buying Them. Geo. Leland Hunter. *Am. Homes and Gardens*, February, 1912, pp. 45-48.

Tapestries of Today. R. V. Goodhue. *House and Garden*, February, 1912, pp. 15-16.

How to Buy Hosiery. Carolyn Trowbridge. Radnor-Lewis. *Good Housekeeping*, March, 1912, pp. 412-417.

The Inside of a Shirt-Waist Factory. Clara Lemlich. *Good Housekeeping*, March, 1912, p. 367.

The Dry Cleaning of Garments. C. G. James. *Good Housekeeping*, February, 1912, pp. 222-223.

The Willow Plume Industry. M. C. Trowbridge. *The Household Arts Review*, February, 1912, pp. 46-48.

My Experience in Reviving Old Embroideries. Mrs. Newell. *Handicraft*, February, 1912, pp. 379-387. Hand vs. machine made embroideries.

What Can High Schools do Better to Help the Industries? Fred. D. Crawshaw. *Manual Training Mag.*, February, 1912, pp. 193-204.

King Cotton. L. J. Abbott. *Independent*, March 7, 1912, pp. 509-513. Benefit of cotton-picking machine.

A Step Towards Artistic Dress in America. Grace L. Hitchings. *The School Arts Book*, March, 1912, pp. 677-683.

A Jute Substitute from China. Lock Haven, *Textile World Record*, March, 1912, p. 76.

Practical Dyeing: Silk and Artificial Silk. Reumark, *Textile World Record*, February, 1912, pp. 117-119.

5. EDUCATION AND SOCIAL WORK.

The Feeding of Necessitous Children. D. Forbes and J. Lambert. *Lancet*, ii, 1911, pp. 239-240.

DEPARTMENT

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HOUSEHOLD SCIENCE

Food Wastes in Public Institutions. Editorial. *Jour. Amer. Med. Assn.*, April 13, 1912, pp. 1116-1117.

The Home and the Market. Martha Bensley Bruère. *Outlook*, March 30, pp. 732-738.

The New Home Making. Martha Bensley Bruère. *Outlook*, March 16, pp. 591-595.

Course in the Use and Preparation of Vegetable Foods for Movable and Correspondence Schools of Agriculture. Anna Barrows. *U. S. Dept. of Agr., Office of Expt. Stations, Bull.* 245.

Suggestive Outline of Domestic Art Course for a High School. Mary E. Eastwood. *Household Art Review*, February, 1912, pp. 38-45.

Vocational Training in Our Public Schools. Mary Josephine Mayer. *Review of Reviews*, April, 1912, pp. 449-456.

Industrial Schools in Germany. *Pedagogical Seminary*, March, 1912, pp. 112-115.

Social Worker in the Hospital. Brown. *Diet. and Hygienic Gazette*, April, 1912, pp. 219-222.

Nursing as a Vocation for the College Woman. Edna L. Foley. *Nurses' Journal of the Pacific Coast*, February, 1912, pp. 54-63.

The New Meaning of Public Health. Robert W. Bruère. *Harpers*, April, 1912, pp. 690-696. Concerning the public health movement in Pennsylvania.

6. MISCELLANEOUS.

Living Costs: A World Problem. Robert Coit Chapin. *The Survey*, February 3, 1912, pp. 1671-1672.

The Modern Sleeping Room. Cooking. *Boston School Mag.*, February, 1912, pp. 307-312.

Household Decoration. Helen Binkerd Young. *Cornell Reading Courses*, vol. 1, no. 5, Farm House Series, no. 1.

Household Furnishing. Helen Binkerd Young. *Cornell Reading Courses*, vol. i, no. 7. Farm House Series, no. 2.

How Reduce the Meat Bill? Jessamine Chapman. *Boston Cooking-school Mag.*, February, 1912, pp. 323-325.

The Ethics of Gastronomy and Dietetics. Janet M. Hill. *Boston Cooking-School Mag.*, April, 1912, pp. 435-437.

The Passing of Pots and Pans. Elenora Elizabeth Reber. *American Food Journal*, January, 1912, pp. 21-22.

CORRECTION. Mrs. Lynden Evans has accepted the chairmanship of the proposed Housekeepers' Section of the American Home Economics Association, and the work of organization is actively under way. The initial conference has been deferred until autumn, when it will probably be held in Chicago.



SUMMER MEETINGS, AMERICAN HOME ECONOMICS ASSOCIATION.

The American Home Economics Association has announced three gatherings for the summer of 1912: The Administration Section will meet at Lake Placid, New York, June 22-26; there will be a Home Economics program at the National Education Association convention at Chicago, July 6-12; and the Graduate School of Home Economics, which is conducted under the auspices of the Association, will be held July 1-26, at East Lansing, Michigan.

The Administration Section will open with a brief business session Saturday, June 22, and the four-day program will include among other features the following papers and reports: Report of the education committee on instruction in institution administration, Miss Sarah Louise Arnold, Simmons College; practice fields in training for household and institution management, Miss Emma H. Gunther, Teachers College; report of laundry committee on organization of institution laundries, Miss S. Maria Elliott, Simmons College, chairman; scientific management in the household and the institution, Mr. F. B. Gilbreth; time studies of household work, Miss Effie Raitt; report of committee on elementary school lunches, Miss Alice Boughton, Philadelphia, chairman; rules and directions for employees, and score-cards for measuring efficiency in employees, Mrs. Annie Dewey, Lake Placid Club; an investigation as to the position of dietitian, Miss Susannah Usher; report on food administration—the equipment and organization of kitchens for a unit of five hundred; distribution per capita of food costs for the different food items, Melvil Dewey; problems in the administration of the individual household, Mrs. Robert Bruère, New York. Other topics which may be treated are commercial laundries and bakeries; floor plans of college dormitories; and a conference on progress for the private household.

All interested are invited to attend the conference. It will prove particularly interesting to persons engaged in some form of administrative work related to the home and the institution, or in education related to administration, but teachers of Home Economics will find this gathering, as those of preceding years, of much significance to them.

The American Home Economics Association will coöperate with the National Education Association in a one-day program at the convention of the latter association in Chicago, July 6-12. The complete program of the National Education Association can be obtained by addressing the secretary, Mr. Irwin Shepherd, Winona, Minnesota. The Home Economics program will be given July 11, and will be as follows:

2.30 p.m., Chairman, Miss Isabel Bevier, president of American Home Economics Association. General subject, The economics of the household: (1) Distribution of income on \$500, \$1000, and \$2000 per year for a family of five, two adults and three children, Miss Mary S. Snow, supervisor of household arts, public schools, Chicago, Ill.; (2) dietetic standards for these various households, Miss Isabel Bevier, head of the department of household science, University of Illinois; (3) obligations to society for the three standards presented, Mrs. Raymond Robbins, head of the National Woman's Trade Union League, Chicago, Ill. General discussion, Miss Irene B. McDermott, director of the department of household arts, Allegheny High School, Pittsburgh, Pa., Miss Carrie E. Lyon, instructor in cooking and housekeeping, Margaret Morrison Carnegie School for Women, Pittsburgh, Pa.; Mrs. Mary D. Chambers, head of the department of Home Economics, Rockford College, Rockford Ill.

In addition to the National Education Association meetings, the Home Economics Association will hold during the convention a conference on problems of housekeeping. This first Housekeepers Conference is being organized by a committee of which Mrs. Lynden Evans of Chicago is chairman. Former teachers of Home Economics who are now keeping house and all home women interested in progress for the home are urged, even if they can not attend the meeting, to send their names to Mrs. Evans, who may be addressed at The Brighton, Washington, D. C. until the adjournment of Congress, then at Congress Hotel, Chicago, Ill. It is hoped to organize a group of people within the Home Economics Association who will work especially upon problems of the private homes.

The third gathering of the summer, the graduate school of Home Economics, will be held at Michigan State Agricultural College, East Lansing, Michigan, July 1-26. It should bring together for the unusual courses offered all school and college teachers of Home Economics who can possibly attend. The preliminary program is printed in the April JOURNAL OF HOME ECONOMICS (pp. 170-171) and circulars may be obtained by addressing Mr. A. M. Brown, Registrar, East Lansing, Michigan.

BENJAMIN R. ANDREWS,
*Secretary, American Home
Economics Association.*

EDITORIALS.

We greatly regret that we are unable to furnish certain back numbers of the JOURNAL which are increasingly called for in order to complete sets for binding. The permanent value of a file of the

Value of the Journal. JOURNAL is now well recognized by individuals and libraries and a reprinting of these early numbers may be found advisable in order to meet this demand.

These three goodly volumes, to which a fourth will soon be added, contain material to be found nowhere else. In them experts in various fields have treated in a masterly way the many subjects that form the basis of this newest of the applied sciences and have helped to place it in its present dignified position before the country.

As one recent subscriber has written, "That table of contents whets my appetite. All my life I have been interested in these subjects and considered them very important, but until lately I did not know that first-class people were writing about them in this thorough way."

Treasure your JOURNALS Bind them if possible, but if you cannot keep them, put them into the hands of those whom they will help or return to our office for distribution. We have many requests.

In the April number of the JOURNAL appeared the interesting address of Dr. Claxton, our recently appointed U. S. Commissioner of Education, as given at our annual meeting, but those

The Spending of the Income. who listened to this address will miss in this report of it one paragraph which raised an important subject to a high plane. In dwelling on the responsibility of the woman as the spender of the family income, he said, "A dollar is a sacred thing, it represents labor, the unit with which we measure a man's work for a day or a fraction of a day. Shall we squander human life?"

We cannot recommend to women's clubs a better topic for study during the coming season than the division of the income of several grades over the different items it is supposed to cover. It is a study in comparative finance and it is warranted to strike deep. Ethical questions beset it on every side.

We find out very soon that life is a question not of *what* but of *which*. If we are above the line of absolute necessity in food, shelter, and clothing, we have the power of choice, and what we choose shows what we value. The members of a family have been known to give up deserts for the winter, in order that they might hear the best music; another has replaced butter with other fats, and the result is a coveted piece of new furniture.

To train ourselves to a better balancing of the income and to be better buyers is not dazzling or spectacular work; it is humble and workaday, but it is along the line of duty. Women produce, it is said, about 1/1000 part of the marketable wealth of the country; they consume or direct the consumption of more than half of it; they must learn to do this intelligently or they are not training and organizing *their work*.

The "power of choice," think what that means! If you have it to any degree you belong to the fortunate classes. Either you have been enabled by education and opportunity to earn your own living, or some one worked for you long ago so that your "wages" are "paid in advance," to use the apt phrase of Miss Grace Dodge, or some one is working for you today. In our honest moments most of us are willing to own that we are getting out of this world more value than we are turning back into it.

This means that we must realize the responsibility that belongs to the great middle class in any country, those whose incomes lie between poverty and riches. It is an immensely important class. It upholds standards of comfort and refinement, out of it come most of the leaders; it has in general worked hard with brain and hand and understands conditions both below and above its own; it bears more than its share of all public burdens. Its needs should be met, its problems studied, and to that it is that Home Economics invites you. The study of this middle class income is as greatly needed as that of the families who live below the poverty line, for poverty is in itself what Mrs. Simkovitch has called "an automatic standardizer." One cannot make mistakes in spending what one has not, but as incomes go up in the scale this power of choice enters in and mistakes abound. The mistakes are said to be the greatest in the incomes between \$2000 and \$10,000.

We venture to launch a new combination of capital letters! They stand for "Central Bureau of Information and Advice to Housekeepers."

It already exists, a branch of it, and is known as the **C. B. I. A. H.** C. O. S. but it extends its help only to the very poor.

Our charitable organizations, beginning with the pressing need to fill the coal bin and the empty pantry, have been forced to take up the larger question of those maladjustments that produce poverty. They strive to abate "the inconvenience of ignorance," to use the quaint phrase of John Eliot, the early missionary to the Indians.

They now send out, even to those who ask no financial help, the "visiting lady" who studies the problems of the home in the only place where it can be studied, in the home itself.

But the "inconvenience of ignorance" is found everywhere. For the middle class home, for those women who can afford to pay a fee for such service, a "Bureau of Information and Advice" is greatly needed. Women once knew all about the things used in their households, for they themselves made them or saw them made. In our modern complicated life such a bureau is needed as an intermediary between the consumer and the various business agencies that supply her daily needs and who are solely concerned in selling her their product.

And how is the household to make its adjustments to new forms of industry and to the outside world which now bears such a different relation to it? Intelligent women are asking such questions as these: What ought we to consider the essentials of a home? What work can be done advantageously by the woman who must be at home to look after little children and what work is best done outside? What is the supervision of bakeries and laundries in our town? Is cost accounting applicable to my small household? What system of accounts will give me the best training for the least expenditure of time? How shall I get the best results from my cookstove? What is the best book on practical dietetics? How shall I go to work to make a fireless cooker? A club of ten want to own together a vacuum cleaner. What one do you advise? Please give the tests needed to tell wool from cotton in buying dress goods. Does it pay to sift cinders? How shall I remove ink spots from a delicate fabric?

It may be said that all such subjects are treated in the daily paper and in the pages of the women's journals. Yes, and often ably, but in other cases superficially and wrongly, and whether the answer is

good or bad the average reader has no means of knowing. If to one who enquires how to keep eggs from spring to fall eleven ways are given, among which is not included the one and only way recommended by the Department of Agriculture, must not such information be counted as worse than none?

But far more serious is the fact that newspaper work is and must be of only passing value. The writer visited one newspaper office where the household column was ably conducted and heard conversations over the telephone with professors in a leading university who were doing their duty in "extension" work by answering such important questions as "What is the food value of alcohol?" and "What advice shall be given to amateur collectors of mushrooms?" Such answers serve for the day only, they are not available for future reference at a moment's notice and the page that contained them is soon in the refuse heap.

Waste of good work as of good material of any kind is distressing—on the other hand how great the satisfaction that comes from the assembly of like facts to form true conclusions and the proper filing of valuable information so that it may be accessible to those who need it at any time! For this the work of trained and disinterested people is needed, and the service of a well-established and regulated bureau whose force understands the great value of *continuance* and the methods thereto.

The essential features of such a Bureau are a woman and a card catalogue. Around these all the rest will order itself. A woman of good sense, experience, and training would be able to answer off-hand many of the questions that puzzle the young housekeeper. Her card catalogue and reference books will answer many more and she will be in official connection with experimental laboratories and wise people all over the country to whom more difficult matters can be brought. The editors of this JOURNAL during the last three years have come into touch with hundreds of sources of information on practical topics, but all is unclassified, unavailable to the seeker.

Such a bureau would easily expand into a larger office with advisers and helpers and be part of a model house with a permanent exhibit of housekeeping appliances. And the visiting housekeeper to go into

any given household on call to study its problems would be a natural outgrowth.

When the women of any community or a few of them feel the need of such a bureau, let them first enquire if it is not possible to start it in connection with some already existing agency. Have you a "Town Room" where a desk would be furnished for the initial experiment? Is your Y. W. C. A. ready to expand in this direction? In any case, begin with a well-paid director, whose first year's salary must be guaranteed by a responsible group. Her first work will be to appear before clubs and other gatherings of women to give actual illustrations in great number of the help that may be expected through such a bureau, and to gather together permanent help for such a movement. Let us add that such a bureau is considered feasible by the New England Branch of the American Home Economics Association and that steps have been taken toward its establishment, as explained on page 188 in our April number.

NEWS FROM THE FIELD.

The technical work of the division of domestic science and arts is divided into two departments—domestic science and domestic arts. Miss Minna A. Stoner is dean of the division of domestic science and arts, dean of women, and professor of domestic science. Miss Iva McBride is assistant instructor of domestic science. Miss Margaret Evans is professor of domestic art, and Miss S. Cage is assistant instructor.

**Oklahoma
Agricultural
and Mechanical
College.**

The courses offered by the division include a four years' course leading to the degree of Bachelor of Science; a teachers' normal course in connection with the normal division of the college, leading to the degree of Bachelor of Science; and elective courses with prerequisites offered to students in the science and literature division, with the same degree as offered in the courses previously mentioned. There is also a two years' course for those who for lack of time and preparation are unable to devote the entire four years to college training, but who desire to have a better knowledge of home management and all matters concerning the welfare of the home, its care, and economic problems.

The prerequisites for all of the courses except the short course are chemistry, physics, and biology. Certain courses in drawing and applied art are prerequisite to the advanced courses in domestic art. Two years of chemistry are required in the domestic science course leading to the degree of Bachelor of Science. One year of architecture has been added to the technical course in the domestic art. English is offered throughout the four years, except to those taking the teachers' normal course, who take up pedagogy, psychology, education, school management, etc. instead.

The courses of study have been greatly strengthened by these new changes, and the department will further expand as means and opportunities afford. The laboratories are now located in the new hall for women where lecture rooms and office rooms are also provided. Each winter a short course of one week is offered to the housekeepers of the state. Recently the upper class girls have organized a society called the Ellen H. Richards Society of Home Economics, which is doing excellent work.

Iowa State College. The new Home Economics building was formally opened May 1. It is hoped to present a description of the building in a subsequent issue.

This congress will be held in Gand, Belgium, about the last of June, 1913. The first congress was held at Fribourg in 1908. The plans of the congress are not yet announced, but anyone wishing to become a member may do so by sending ten francs to the treasurer, Mme. le Jeune d'Allegeerscheque, 16 rue des Palais, Brussels. This will ensure the receipt of the reports of the congress, which will comprise at least five volumes. Questions regarding the congress may be addressed to this JOURNAL.

Second International Congress on Teaching Home Economics.

BOOKS AND LITERATURE.

Food for the Invalid and the Convalescent. Winifred Stuart Gibbs. Macmillan Company, 1912, pp. 81. \$0.75 net.

The author of this little volume has been for five years visiting dietitian for the New York Association for Improving the Condition of the Poor, teaching women in their homes how to provide wholesome food for their families. The book treats in the simplest possible language such topics as How to Buy, How to Keep Food from Spoiling, and Why Dirty Stores are Dangerous.

How to Eat and Why to Cook are rather inaccurate titles for sections dealing with the functions of food and the general reasons and chief methods of cooking. It would seem better to place "Food that gives working power" before "Food that gives heat," especially as we do not usually eat food primarily to yield heat. "Food that gives muscular strength" seems tautological with "Food that gives working power."

About half of the volume (containing about eighty pages) is devoted to directions for selecting and cooking simple and inexpensive dishes suitable for the sick and convalescent, and the remainder to special menus for the family, adapted from the author's pamphlet, *Lessons in the Proper Feeding of the Family*, diet for young children, quoted from Miss Farmer, and some special diets for the sick, including diet for constipation and for the first stages of tuberculosis. The advice is sound and practical, and the book will prove useful to dispensary workers for whom it is designed, and to other social workers without technical knowledge of the feeding problem.

MARY SWARTZ ROSE.

Educational Status of Nursing. M. Adelaide Nutting. *United States Bureau of Education Bulletin*, 1912, No. 7.

This bulletin brings together the results of an investigation as to conditions in nursing education, with recommendations.

The author believes that the training of nurses is at present inadequately cared for. The hospital is manned with the exploited services of the nurse, and the educational courses provided are meagre and suffer from the demands for practical services within the hospital. Progress may come through the establishment of separate educational institutions and training courses for the nurse, which may be affiliated with the hospital, as is the medical school.

There is thought to be an opportunity here for university schools of Home Economics, which undertake a department of nurses training, as has been done at the University of Minnesota, with its School of Nursing, and as has been carried out in a less extensive way by other university relationships to hospitals. Home Economics workers may well remember that nursing was originally a household art, and our technical schools should stand ready to develop affiliations with this branch of technical training.

Process of Disinfection by Chemical Agencies and Hot Water. H. Chick. *Jour. Hyg.*, 10, 1910, no. 2, figs. 21, pp. 237-286; abs. in *Hyg. Rundschau*, 22, 1912, no. 6, pp. 370, 371.

In the amount of time required, disinfection may be compared to a chemical reaction of the bacteria and the disinfecting agent. As regards quantity of materials, it follows the law of proportional mass, and as regards temperature the law of Arrhenius. In disinfection with hot water (45 to 55°), the process follows a course similar to that of the coagulation of albumin. Concentration, time, and temperature act in accordance with the same laws as in the case of chemicals. The presence of even small quantities of acid also has a strong influence. It is probable that disinfection by evaporation and sunshine follow similar laws.

Greasy Marks and Methods of Removing Them—Stains and their “Cures.”
Illus. London News, Amer. ed., 50, 1912, no. 1296, p. 348, fig. 1.

An illustration with descriptive data showing graphically the relative efficiency of different solvents for removing lubricating oil, coal tar, resin, and other substances.

A New Ice Chest. C. Zelmanowitz. *Biochem. Zeitschr.*, 39, 1912, nos. 1-2, pp. 151-154, fig. 1.

This article describes an ice chest devised for laboratory use in the Kaiserin-Auguste-Victoria Institution for the Combat of Infant Mortality, in the German Empire. The external measurements are 2.25 m. by 1.50 m. by 0.70 m. Beginning with the outer surface the box is constructed of a pine case, a layer of insulating material, and an interior wooden box lined with tiles. Adjustable shelves of perforated zinc sheets are supported by nickel-plated rods fixed at frequent intervals in the interior. The ice chamber is at the upper left hand corner of the box and can contain 2 cwt. of ice. Above the box at the right is a small electric motor by means of which air is driven into the ice chamber and kept in continuous circulation through the box. In cold weather, air of the temperature of outdoors may be pumped through the box, thus lessening the need of ice. The front of the ice box contains 8 small doors, the idea here being to lessen the loss of cold when the box is opened. Even when due allowance is made for the cost of the motor and power this box has been found more economical than one which relies entirely upon ice for its cooling, and has a further advantage of constant ventilation.

[The ideas embodied might prove useful in ice chests for home or institution use.]

Building a Concrete Porch Floor. J. E. Wing. *Breeders' Gaz.*, 61, 1912, no. 11, p. 652.

Practical directions for building a porch of reinforced concrete are given.

Standards of Food Products in Commerce. A. McGill. *Pure Products*, 8, 1912, no. 4, pp. 209-217.

This article is an address read before the Canadian Section of the Society of Chemical Industry. It contains a discussion of the general principles which underlie the legal standards set for purity in food products, the use of preservatives, coloring matters, and similar topics.

Thoughts on the Action of the Enzymes, with Special Reference to the Nature of Pepsin. J. E. Hancock. *Amer. Jour. Pharm.*, 83, 1911, no. 8, pp. 373-376.

A discussion of the modern theories regarding the nature of enzymes, with special reference to the atomic theory.

The Business Side of Farming. Part I, Farm Records. J. A. Bexell, A. M., Dean of School of Commerce, Oregon Agricultural College, Corvallis. Second edition.

This treatise will be found of considerable interest and help to instructors in Home Economics who are concerned with instruction in household accounts. One chapter of the bulletin is devoted to this subject. Blanks may be secured to accompany the bulletin, if one wishes to use it in instruction.

It is suggested that some of the colleges which are publishing material on Home Economics would do well to bring out a popular work on household accounts.

SOME RECENT BOOKS ON HOME ECONOMICS.

Equipment for Teaching Domestic Science. Helen Kinne. Whitcomb and Barrows, Boston. Price, 75 cents.

The Book of Entrees. Janet M. Hill. Little, Brown and Company, Boston, 1911. Price, \$1.50.

The Cupboard Papers. Fin-Bec. Chatto and Windus, London. Price, \$2.00.

Public Health and Housing. John F. J. Sykes. P. S. King and Son, London. Price, \$1.50.

The Lunch Room. Paul Richards. Hotel Monthly Company, Chicago. 1911. Price, \$2.00.

Dictionary of Foods and Culinary Encyclopedia. Herman Senn. Food and Cookery Publishing Agency, Westminster, England. Price, 60 cents.

1912 Book of Home Building and Decoration. Henry C. Brown.

The Foundation of all Reform. Otto Carqué. Cosmos Publishing Company, Chicago.

Interim Memorandum of the Teaching of House Craft in Girls Secondary Schools. Board of Education, London. Price, 8 cents.

Housekeeping and Household Arts. Alice M. Fuller.

The House and its Equipment. Lawrence Weaver. Scribner. Price, \$5.00.

Home Hygiene and the Prevention of Disease. Norman Ditman, M.D.

Duffield and Company, New York City. 1912. Price, \$1.50.

Educational Needlecraft. Swanson and MacBeth. Longmans, Green and Company. Price, \$1.35.

School Hygiene. Hope Brown. University Press, Cambridge. Price, \$1.00.

Motion Study. F. B. Gilbreth. Van Nostrand, New York City. Price, \$2.00.

Primer of Sanitation. Ritchie and Caldwell, World Book Company, New York City. Price, 50 cents.

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Class in Sewing.



Class in Laundry Work.

Negro Industrial Training in the Public Schools of Augusta, Ga. (See opposite page.)

T H E

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NEGRO INDUSTRIAL TRAINING IN THE PUBLIC SCHOOLS OF AUGUSTA, GA.

ELIZABETH G. HOLT.

Supervisor.

For two reasons industrial training is strongly emphasized in our education of the negro youth in Augusta, approximately half their time in the two upper grades being devoted to it.

The first is that it may have an appreciable effect upon their habits of living. The original racial instincts of the negroes, and the poverty in which they have lived from the time that the support of the wealthy slave-owners was withdrawn, have caused the homelife of the present-day negro to be utterly lacking in system, cleanliness, and comfort. Anyone who knows the squalor of the black belt that surrounds nearly every southern city, or the pathetic and primitive attempts to conceal with a few flowers and broken ornaments the extreme discomfort within the house, will bear witness to this statement.

The second reason is that it may enable them to render efficient service in the lines of work that they must necessarily follow in this section of the country under present conditions.

This industrial training is not being forced upon the negro. In fact it was first introduced into the white schools, and there the negro leaders in the educational life of the community, seeing the great advantage that it would be to their people, asked that they also might have it. In order to forestall any denial of their request by the Board of Education for financial reasons, they voluntarily offered to reduce the "book-learning" of the schools in order to use some of the regular grade teachers in the new Industrial Department.

Before this special training was undertaken the purely academic work was covered by an eight-grade course, almost identical with that given in the white schools. In modifying the course of study to make it respond to a demand for a more limited academic scope and an increased industrial one, we have been able to employ some of our former grade teachers as industrial teachers, thereby solving in part the problem of expense.

Through the remarkable devotion of these teachers to their cause, their eminently proper conception of its purpose, and their complete coöperation, it has been easily possible to train them specifically through the means of local normal classes supplemented by a helpful supervision of their teaching work, and through summer work at Hampton and Cheyney Institutes. It has been the custom of the Board of Education to make a certain appropriation each summer for Institute work with the negro grade teachers. Last year (1911) this appropriation was increased and used to send all the negro industrial teachers to summer training schools.

The work has been introduced into the four schools with enrollments sufficiently large to warrant the cost of equipment. The pupils in the two upper grades, the sixth and seventh, receive the instruction. These number per school about 60 girls and 15 boys.

In each school there are three sub-departments for the girls—cookery, laundry work, and sewing. Each sub-department has its own special teacher who devotes all her time to teaching the pupils of that particular building. This gives three Home Economics teachers to each building. The boys go to the central shop for their bench-work. All the departments are well equipped for individual work by twelve pupils per class.

Each girl receives per week approximately five hours instruction in cookery, four hours in sewing, and three hours in laundry work. A genuine interest on the part of the pupils is evidenced by their willingness to work over hours, at recesses or after school, when the occasion demands it.

Each boy receives per week one day's instruction in bench-work at the central shop known as the Second Ward Industrial School. It is the intention to introduce into this school in the course of time training in other trades.

Upon satisfactorily completing the work of the various departments the pupils are given certificates stating exactly the training that they have had. The names of those receiving the certificates are kept

on record, and so far as possible their future records as house-servants will be inquired into. By this plan of certification it is the purpose of our school system to supply the city with duly authorized and certified cooks, laundresses, and seamstresses. So far as we know, no other town or city has this plan so definitely worked out. If on the other hand they do not go into service, we propose to qualify them for keeping better homes of their own.

Following is a copy of the form of certificate given for cookery. Attached to each certificate is a statement of the exact work done by the particular pupil to whom it is given. This is necessary for the reason that the course of study is still in a progressive stage, changing and advancing from year to year.

<p style="text-align: center;">Public Schools of Richmond County</p> <p style="text-align: center;"><u>DOMESTIC SCIENCE</u></p> <p style="text-align: right;">.....19.....</p> <p><i>This is to certify that.....</i> <i>has satisfactorily completed the Course of Study</i> <i>in Domestic Science in the.....</i> <i>..... school.</i></p> <p style="text-align: center;">..... <i>Principal.</i></p> <p style="text-align: right;">..... <i>Teacher.</i></p>

COOKERY DEPARTMENT.

In food preparation the foundation work is upon bread making. Considerable skill is acquired by means of repeated reviews and variations throughout the course. Training in all the typical forms of

cooking is given. The work is more elaborate and extensive than that in the white grade schools for the reason that in many instances these negro girls will obtain positions as cooks in well-to-do families, while the training in the white grade schools is limited to meet the average income.

Much stress is laid on the proper planning and serving of meals. In every lesson the correct manner of serving the particular dishes taught is included as a very important feature, while from time to time there is practice in laying the table and serving whole meals. The girls who come under this aesthetic influence at school will not only be capable of giving satisfaction to their future employers, but will also carry the influence of the ideal into their own homes.

We have a printed School Cook Book containing the recipes taught in the schools and others for home practice. In addition to practical manipulation, the training includes instruction in the scientific principles involved in the processes and as much about the materials as can come within the comprehension of the pupils.

Great emphasis is placed upon the formation of habits of cleanliness and order. This can be clearly seen in visiting one of these spotless school kitchens. Each pupil is taught the necessity of clean hands and personal neatness. No other work is allowed until the tables are scoured and immaculate, the stove and utensils shining and bright, and everything in perfect order. The equipment generally is in as good condition now as it was when first purchased three years ago. The neat young cooks always appear in white aprons and caps which they make in the sewing classes and keep clean and smooth in the laundry department.

As should be the case in all education the leading aim in this department and in the others is the development of proper character in the pupils. With these particular children stress is placed upon those things that make them more responsible and dependable. The moral effect has been remarkable.

Ordinarily the pupils work in groups of two, one bearing the main responsibility and the other assisting and observing. Each lesson is repeated at the following meeting of the class when the pupils exchange places. By this method two very important ends are accomplished, namely: (1) Concentration of attention and independence are developed, since the pupils must work entirely without the teacher's suggestions in the repetition lessons; (2) more nearly normal quantities of materials per individual can be used than would be pos-

sible by a greater division. Therefore a more normal manipulation is obtained.

Instruction in handling materials properly is very necessary. It is most important that all the experience of the school should enable the pupil to work practically in the home. Much of the criticism that has been made of domestic science courses throughout the country has been due to the fact that in order to keep the bills of the department at a minimum the pupils have been compelled to work with such small quantities of materials that they have been at a loss when undertaking to apply their knowledge at home under normal conditions. The pupils are here trained to modify the recipes to meet the needs of different sized families.

The supplies for the cooking lessons are paid for out of the school funds. The average cost per pupil per lesson throughout the course is five cents. Great care is taken in the purchasing of these materials. The pupils are taught the principles of economical buying and are trained in judgment in the selection of wholesome as well as attractive foods.

The cookery equipment is ample as to utensils; it includes all that should be in the modern well-furnished kitchen, and selected with judgment as to use, durability, cost, and appearance. Wood or coal stoves are used, but gas is to be introduced later on. There are substantial cabinets with sliding glass doors, a large work table with twelve drawers, and sliding bread-boards, six to a side, twelve stools, a sanitary sink, refrigerator, screened doors and windows, teacher's desk and chair, etc. The woodwork and walls are white. At the windows are white swiss half curtains, shades, and potted plants. Everything inspires happy efficient work and offers an ideal of a clean and attractive laboratory.

In this department, as well as in all the others, notebooks on the daily work are kept and the general interest is manifest from the care with which records are made by the pupils upon all points of instruction.

SEWING DEPARTMENT.

Up to the present the work in the sewing classes has been based upon plain hand and machine processes, the application being upon towels, caps, sewing and cooking aprons, curtains, table linen, ironing-board covers, etc., to be used in the schools, and upon complete personal outfits for the pupils themselves. The materials for school equipment

are paid for out of the school funds. The pupils themselves purchase the materials for the personal outfits.

In the planning and making of their own clothes they are led to exercise judgment and taste in the selection of materials and styles. Strong emphasis is placed upon accuracy, neatness, and economy of time and material.

The stitches are learned upon scraps of cloth. These are discarded as soon as sufficient skill is acquired for direct application upon the garment itself.

In the cutting of garments the pupils are taught the use of purchased patterns. Through this instruction they are trained in independence and economy, being required to study the printed directions and to reason out for themselves the proper placing of the patterns on the materials.

It is impossible to keep a class together in sewing work since individual capacities assert themselves strongly. However, periodically the pupils are marshalled into line and class instruction given. This must be followed up by considerable individual assistance.

In connection with the practical applications instruction is given in the history of the various implements used and the selection and care of different textiles, this latter point being further demonstrated in the laundry department and upon the hygiene of clothing.

Upon completing the course of work the girls are capable of clothing themselves properly and of keeping this clothing mended and in order. Through it they have a foundation of knowledge and skill whereby they can with experience become expert seamstresses and dressmakers.

The equipment in this department consists mainly of twelve individual cutting tables, one demonstration cutting table, twelve fully equipped sewing baskets, two sewing machines (more to be added later), ample cabinets for storing and displaying the work, two stationary lavatories, blackboards, demonstration frame, waste paper baskets, chairs, etc.

Considerable attention is paid to the general appearance and comfort of the rooms, the endeavor always being to place the pupils in wholesome, uplifting environments.

LAUNDRY DEPARTMENT.

In the laundry department the necessary principles are impressed through a large and varied practice. In the beginning of the course

the work is upon the school equipment that has been made in the sewing classes; later in the year upon articles brought from home by the teachers and pupils.

Each new process is presented to the class through demonstration by the teacher. In connection with the processes she develops the principles and reasons involved. Thus the pupils are trained to work intelligently as well as skillfully. Following the demonstration the pupils work individually.

The certificates of proficiency given upon the completion of the work in this department mean that the holders are competent to do laundry work with a degree of skill far surpassing that of the average untrained washerwoman of the community. Every process has been worked out intelligently so that not only will the results of their work look better, but also from their correct methods the various fabrics will last longer.

The laundries are equipped for individual work by twelve pupils. There are two stationary tubs for general purposes and for carrying off waste water. The individual washing is done in ordinary galvanized iron tubs such as the pupils will use at home. These rest upon benches of convenient height having rollers that they may be easily moved to the stationary tubs to be filled with water by means of hose-pipes. There are twelve ironing boards which rest upon movable stands. Each board is furnished with a sufficient number of irons. In the general equipment there are a heater with a 40-gallon boiler, a stove for heating the irons, charcoal iron heaters for warm weather, vessels for boiling the clothes and making starch, tables for sprinkling, baskets, etc.

As the laundries are on the second floor a large uncovered platform has been built off from each for the purpose of drying the clothes.

BENCH WORK.

The boys of each school are assigned a certain day in the week for reporting at the second ward bench-work shop. Here they make articles for the schools and for their own homes. They are allowed to have the product of their work upon paying the cost of the raw materials.

The uses of the various tools are taught in direct application upon interesting problems. The pupils acquire skill much more readily and happily through this immediate appeal to their interest than they ever would through abstract drill.

All that has been said of the far-reaching effect of the industrial training upon the girls, could be repeated in regard to the boys. Under its influence they are developing into much more trustworthy and competent citizens.

The following quotation from a report of one of our negro school principals and leading negro citizens will show that the sentiments expressed in this article are in accord with those felt by our negro himself:

The public school is the only training school which the vast majority of colored boys and girls will ever enter. It ought to need no argument, then, to show that the things that will best prepare them for life's struggles are the best things to teach them in the public schools.

Why are children sent to school? For two reasons: First, to teach them to earn a living, and, secondly, to teach them to enjoy what they earn. The fundamental reason is, of course, the first. The second reason is a secondary consideration. Yet it is on this phase of education—the cultural side, so-called—that the emphasis has been placed in the past. Really, the cart has been placed in front of the horse. We have been teaching the children to enjoy what they earn and have been teaching them to earn—nothing!

We now know better. We have seen our mistake and we have had the courage to turn around.

To be sure, we believe in teaching the fundamentals in the literary department, but we are unalterably convinced by practical experience that attention must be given more and more to what has been called in some quarters 'the bread and butter side of education.'

From another:

Since sewing and cooking have been introduced into our school the teachers of the school, together with the friends, both white and colored, have remarked that the pupils are neater and cleaner in their personal appearance and more orderly and obedient in their conduct. The general effect upon their morals has been marked. A number of their employers have testified that they are more helpful to them now than they were before the work was introduced. The children themselves are so interested that they are willing to work before and after the regular school hours.

The following is an instance of the appreciation that the negro parents have of the work. In one of the schools one of the pupils is the daughter of a family of negro farmers who live up the country and send this girl down to attend our public schools during the winter months when there is no work for her to do in the fields. This year they are allowing her to stay several weeks longer than heretofore in order that she may advance further with the industrial work.

The remarkable and gratifying progress of this department has been due to the earnest enthusiasm, untiring energies, and unfailing coöperation of all concerned.

We believe that the best friend to the southern negro is the southern white man who realizes his limitations, sympathizes with his needs, and deals with him fairly and wisely for his greatest good in the community in which he must continue to live. Such a one is the superintendent of these schools, and to him first and foremost is due credit for his wise selections and direction in all the development of the industrial training throughout the system.

THE TEACHING OF SANITARY CHEMISTRY IN A WOMAN'S COLLEGE.¹

KATHARINE BLUNT.

Vassar College.

As advocates of certain practical courses in women's colleges you have heard often repeated the idea that college courses must be cultural or disciplinary rather than vocational. I wish to describe in this paper a course given at Vassar, which is markedly "disciplinary," but in which this quality depends in part at least upon the close connection of the subject matter with practical daily life. It helps supply that idol of the undergraduate, "general culture," and also opens her eyes to the necessity of applying the best of brain power and of knowledge to everyday questions. I have called it sanitary chemistry, for lack of a better name, or applications of chemistry to food and sanitation. It is offered as a second year's course in chemistry with three hours of class-room work and four of laboratory.

The subject matter of the course is the chemistry of food, water, and air, and their adulteration. We spend two-thirds of the time on food and the organic chemistry leading up to it, and, as it is impossible to present the chemistry of food intelligently without organic chemistry, all food discussion, both in class-room and laboratory, is preceded by that part of pure organic chemistry with which it is closely related. For example, we study simple esters before fats, giving structural formulas and equations. We discuss optical activity in as elementary a way as possible, in order to use the polariscope intelligently for our work with sugars. We even isolate one or two amino acids from proteins and discuss the structure of the protein molecule as a complex polypeptid. The course is by no means symmetrical from the point of view of the organic chemist, but the attempt is made to give enough of the pure organic chemistry to make the attitude toward the food chemistry scientific rather than empirical.

We also study individual typical foods as a whole—milk, meat, butter, flour, vinegar—their commercial preparation, their composi-

¹ Presented at the Washington Meeting of the American Home Economics Association, December, 1911.

tion, their nutritive value, their adulteration. The laboratory work here is partly qualitative, for example, the separation of the different components of milk; and partly quantitative, as the determination of the fat of milk, chocolate, and various other foods, the determination of the protein of a cereal breakfast food or flour by the Kjeldahl method, and the distinguishing between butter and oleomargarine by the Reichert-Meissl number as well as by the simple household tests.

In the class-room discussion considerable emphasis is laid on the question of food adulteration, and in the laboratory many tests, both qualitative and quantitative, are made for the common adulterants, for coloring matters, and for preservatives. The students are encouraged to bring in samples of food that they wish to test, either at intervals throughout the course when special groups of substances are being studied, or, with better effect, toward the end of the year, when they have acquired somewhat greater skill in manipulation.

A short time is spent in reading and discussions upon dietary questions, using in part Professor Sherman's *Chemistry of Food and Nutrition*. The students weigh their food for a meal and compute or determine its value.

The degree of accuracy possible in the laboratory work is restricted by the limited training of the students; but emphasis upon such accuracy as is within their powers is essential. It is sometimes advantageous to use the fine chemical balances, but in most of the work balances as rough as the ordinary horn pan affairs, weighing to hundredths of a gram, are entirely satisfactory, though occasionally quantities somewhat larger than generally required must be taken for analysis. Burettes are used and with some care; and an understanding of the meaning of standard solutions and the general principles of volumetric analysis is essential if the quantitative work is to be done intelligently. Such knowledge can easily be given when the need for it arises.

For our study of drinking water we are especially well situated at Vassar. The sources of water around us are considerably varied. Our main college supply in use in the dormitories comes from wells of excellent character, a second supply used only for the boiler and laundry is from a small stream, and much of the water of the houses near the college comes from shallower wells the water of which needs watching. The college employs an analyst who keeps track of the college supplies and those of the neighborhood. In our course the students make a study of the college water in connection with the general question of sanitary water supplies, performing the main processes of a

regular chemical water analysis in the laboratory of the analyst and under her direction, and comparing their results with hers for the same water, and also with hers for other waters of the neighborhood. Both the college waters and those of the neighborhood are of personal interest to the girls, as some of them have formerly lived "off campus" and used these outside supplies, or at least frequent tea-houses that use them. It is therefore an easy task for the instructor to encourage considerable reading and class-room discussion, and to make the students see the vital importance of proper water supplies.

Less time is spent on air than on the other parts of the course. We discuss the varying composition of the atmosphere, especially the quantity of carbon dioxide and water vapor, their significance, their determination, and their regulation by proper ventilation.

As a prerequisite for this sanitary chemistry we demand one year of college work in general chemistry. Ideally, for an adequate presentation of the subject matter, it would be a great advantage to have students who had had in addition at least qualitative and quantitative analysis and elementary organic chemistry. We have another course of somewhat similar subject matter for students with such preparation, but our aim in the course described above is not to train analysts but to make possible the understanding of the expert's analytical results as well as his conclusions, and to learn something of the possibilities and the limitations of chemical investigations along sanitary lines. In a word, we do not expect to train experts, but do hope to train students to an understanding of the significance of the work of the expert. We believe that the girl whose main interest is not scientific but who wishes to be intelligent on these important applications of chemistry should not be forced to take three years of specialized work before gaining this intelligence. This belief is in line with the tendency in some college departments to give brief courses for the general student as well as more detailed courses for those who specialize.

Our ideal is to have this sanitary chemistry one of several closely connected courses—bacteriology, especially of water, milk, and other foods, with a discussion of the questions of contagion and municipal disinfection; physiology, emphasizing nutrition and the effects of various diets; and sociology, including the general civic and legal aspects of the pure food, water, and air campaign and in general the larger questions of public health. Such a program of work would be somewhat similar in scope to the courses in training for public health

officials given at some of the larger universities. As an undergraduate course it would be more elementary and less thorough, but much of the ground covered would be the same.

So much for the general scope of the course. To what classes of girls do we consider it of value, and what do we hope it will do for them? We believe that it should be of value to virtually all college students—to the young women who will live a domestic life; to those who will go into social work of any kind, since there sanitary problems are of constant and pressing importance, be the work that of friendly visitor or member of a hospital board; to those who expect to teach and who will come upon cases of improper living conditions among their pupils that a little knowledge might alleviate; to those who may go on with further study in the same line to become public health officials; and in general to all those young women who wish to be intelligent on a public question of almost unequaled importance and who wish to gain the increased culture that comes from opening the mind to the bearing of science on establishing wholesome living conditions. A remark of Mrs. Huddleston's² gives well our belief in the value of this sanitary chemistry to the general student, although it does not mention the subject specifically.

Without some acquaintance with biology, with bacteriology, with psychology, a man or woman is today almost as much cut off from the great currents of civilized thought and of righteous concerted action as persons unable to read and write have been for centuries past. Knowledge so fundamental, once assimilated, alters the whole intellectual and ethical attitude.

What may be the value of the course to these students has in part been already implied. First, it should give them some practical knowledge that will help them to be efficient public-spirited citizens, not led astray by extravagant statements but ready to initiate or give loyal support to sane work. Second, it should imbue them thoroughly with the idea that expert knowledge is needed in work that has to do with sanitary questions. As Dean Talbot³ says: "Society expects women to be 'casual' in their interests and work." This training should help to lessen that tendency and lead the students to feel that this is "an age whose every task," to quote Woodrow Wilson,⁴ "is conditioned upon some intelligent and effective use of the mind, upon some substantial knowledge, some special insight, some trained capacity,

² M. P. Huddleston, *Pub. Assoc. of Collegiate Alumnae*, ser. iii, no. 21, p. 36.

³ Marion Talbot, *The Education of Women*, Univ. of Chicago Press, 1910.

⁴ Woodrow Wilson, *Scrib. Mag.*, vol. xlv, p. 576.

some penetration which comes from study, not from natural readiness or mere practical experience."

And third, the course should have marked disciplinary value. It is sufficiently hard to give good training purely in overcoming mental difficulties. It should have the additional value that comes from all properly managed laboratory courses—development of resourcefulness, self-reliance, coördination of mind and hand, power of reasoning from concrete observations. As its characteristic and especially valuable discipline, it should make the students feel that the scientific attitude is necessary in daily life, that the whys and wherefores of the little things and the big things should be explained and related. It should develop an intellectual curiosity about things as opposed to ideas. As children women seldom form the questioning habit about things around them as men do. A small girl, unlike a small boy, does not ask questions of the bricklayer or the street paver or the plumber; some of the girls whom we have at college have not even asked questions of the cook. A course such as this gives them the best possible discipline in this direction. There is nothing essentially feminine about it, to be sure. I speak of it as a question in the education of young women because I teach young women and because there is no doubt that they do need such training. From it they get a little below the surface of a subject whose importance is obvious to them, and they gain an impulse toward investigating the material things of life, a desire to explain what they see. There is much less danger of the good college student's missing the intellectual joy that comes from the study of books, than of her missing the joy that comes from understanding things. She can usually reason from what she reads better than from what she sees, from ideas better than from facts.

To sum up, we believe such a course in sanitary chemistry should be of benefit to college students, because it should give, first, certain significant information necessary for general culture and for efficient service; second, a sense of the importance of expert knowledge; and third, a valuable discipline arising from its difficulty, its laboratory method, and its training in applying the scientific attitude to questions of daily life.

To quote Dean Talbot⁵ again: "The right education gives women not only specific knowledge, but vigor and breadth of view, discipline of character, and a freedom of mind which comes from the scientific attitude."

⁵ Talbot, *loc. cit.*, p. 31.

MARKETING FACILITIES AND THEIR RELATION TO THE COST OF LIVING.¹

EDWARD EWING PRATT.

New York Food Investigating Commission.

There are two fundamental theses of this paper. The first is that the supplying of food is one of the most important public services in any community. The provision and regulation, therefore, of marketing facilities are as important as the safeguarding and supervising of the community's transportation, gas, electricity, or water.

The second is that the present method of supplying the community with food is unsystematized and wasteful. The difficulties, however, of marketing foodstuffs are not due to the manipulation of any group of men, but rather to the faulty method of marketing which exists at present.

To the consumer, who may be only a casual observer of economic conditions, the present methods of marketing food supplies do not seem to be economical. He wonders oftentimes why there must be a store in every block, each one doing a very small business; he wonders why the eggs which he eats for breakfast must pass through four or five different dealers on their way to market, with each dealer meaning a loss of time, a profit, and expensive handling; his farmer friend tells him that farm produce brings almost nothing, and yet he knows that he is charged seemingly exorbitant prices at city markets; he sometimes wonders if he is paying for the expensive delivery system that is maintained by the retail stores; he wonders if he is paying for the groceries which his neighbor got on credit and did not pay for; he wonders if he is paying for any of the advertising when he eats his breakfast food. These are some of the questions which the consumer has been asking himself, and the lack of any satisfactory answer has made him alert to the situation and, perhaps, somewhat querulous.

Of all the expenditures of a community, the expenditure for food is greater than that for any other item. There was a time when the community recognized that the supplying of food was a public utility.

¹ Presented at the Lake Placid Meeting of the Administration Section of the American Home Economics Association, June, 1912.

This view seems to prevail no longer, and our food supplies are today almost unregulated, and have been given over to individual and private management. The result is often wasteful and inefficient methods of distribution. Other branches of our public services are carefully safeguarded and regulated by the municipal, state and federal governments, but the food supply is largely unregulated and almost chaotic.

From the early days of the village of New Amsterdam, there have been public markets in the city of New York. The farmers of Greenwich Village used to bring their vegetables into New Amsterdam, and to sell them along the water-front where the city had definitely limited the location of markets in which the sale of food supplies was permitted. As the city grew, market houses were needed. These were usually established where the people in the immediate neighborhood were willing to build the market house, which was then turned over to the city for operation. In the early part of the nineteenth century, the restrictions prohibiting the sale of food products by private marketmen began to break down, and markets not under the supervision of the city sprang up in various parts of New York. From this time on, the public markets fell more and more into disuse, and failed utterly to keep up with the growing and changing population.

At present, there are in New York City only two strictly retail markets—the Washington and Jefferson Markets. In addition, there are the public wholesale markets, known as the West Washington, Gansevoort, Wallabout, and Fulton (which does a small retail business).

In the case of these markets, the city of New York merely acts as a landlord; the city provides the building, and rents out the stalls to retail dealers. There is considerable vacant space in both of the retail markets, and as a result they are a source of loss to the city. As a matter of fact, the city loses about \$80,000 yearly in the conduct of its markets.

New York City today has no definite market policy. It provides neither adequate wholesale nor adequate retail marketing facilities. The city does not even provide adequate terminal facilities for its food supplies. There is a crying need for some sort of regulation of markets and for the provision of marketing facilities in the city of New York.

Food supplies, shipped to New York City from all over the country and the world, are brought into Manhattan, and most of them are discharged along the Hudson River below Twenty-third Street. It is quite natural that this part of Manhattan has been chosen as the chief

terminal for New York City. The physical limitations of the port of New York City have largely determined it. Staten Island and Long Island are without any direct connection with the mainland. The low and somewhat marshy shores of New Jersey, with a high bluff immediately behind them, were poor locations for steamship piers or railroad terminals, and only within recent years have they been used to any extent. Manhattan Island with its rocky and almost precipitous banks formed a model location for piers and docks. On the other hand, however, there are only two freight-carrying railroads which enter New York, namely, the New York Central and the New York, New Haven, and Hartford. All the other railroads, which bring in the aggregate the largest amount of food supplies, are without direct terminal facilities, and it is necessary, therefore, for them to lighter all their freight which enters New York City. Most of the food supplies of the city are moved in the early hours of the morning, and the produce is sold, much of it on the docks and at the terminals, before 7 or 8 o'clock in the morning.

Food products are usually consigned by the producers to commission men who act as the receivers; they in turn sell to jobbers. A commission man usually specializes on a particular kind or line of goods. The jobber on the other hand brings together many lines of goods. He usually buys a special grade which he needs for his particular class of trade. The jobber sells to the retailer; although in many cases, another jobber intervenes—in New York he is the dealer, who has his place of business at the Harlem Market or in Attorney Street on the lower east side. By the time the retailer receives these goods, they have passed through at least four hands in New York City—transportation agencies, the wholesaler, the jobber, and the retailer.

There is no better example of this complicated process than the way in which eggs are usually marketed. The producer or the farmer is usually very haphazard in his methods. He collects the eggs at odd times and more often not until he is ready to go to town. He then gets together all the eggs that he can find, and takes them to the country storekeeper. The storekeeper usually pays him not in cash but in trade. The storekeeper in turn sells the eggs to collectors who go through the country gathering eggs from farmers and country storekeepers. The collector packs and grades the eggs and ships them in carload quantities to the New York market. Here they are received by a wholesale receiver who calls himself a commission man, although

he may or may not be doing a strictly commission business. The usual practice among commission men is to sell the eggs in as large quantities as possible to a jobber. The commission man then returns the amount realized, less a commission which is usually about 5 per cent.

Very often the price at which the sale is made is left to be determined by the market quotations as printed in the daily market publication known as the *Price Current*. The *Price Current* is compiled from figures obtained by reporters who canvass the wholesale district collecting the prices of commodities. The printed quotations may or may not represent the market, at most it succeeds only as well as the reporter succeeds in gauging it. The jobber, who buys from the commission man, either sells his eggs to a retailer or to another jobber who does business on a smaller scale. They in turn sell to the small retailers from whom the bulk of the population buy their eggs. When the eggs have finally reached the hands of the consumer, they have passed from the producer to the country storekeeper; from the country storekeeper to the collector; from the collector to the transportation agencies; from the transportation agencies to the commission agent or wholesale receiver; from the wholesale receiver to the large jobber; from the large jobber to the small jobber; from the small jobber to the retailer; and finally to the consumer. At each stage in the process, there are expenses for handling, for trucking, for storage, and a margin of profit. All of these charges are summed up in the price which the consumer pays, of which usually not more than 60 per cent and sometimes much less than this, goes to the original producer. Similarly complicated and round-about processes of marketing are to be found in almost every line of food supplies. Essentially the same thing is true of green vegetables, butter, cheese, canned goods, fish, poultry, milk, and many of the staple groceries. In certain lines, however, modifications have been made; for example in the marketing of western fruits and meat products.

Much of the western fruit sold is marketed through coöperative organizations of producers. The orange growers of California and the apple growers of Colorado, Oregon, and Washington have organized in order to eliminate as far as possible the middleman's expenses, to regulate the supply of fruit which may be sent to any given market, and to equalize the supply between seasons of scant and flush production. They have been eminently successful, and much over half of the entire supply of oranges from California is now marketed through

one organization. As a result, the prices on oranges are steadier throughout the year, and the producer through his coöperative organization becomes a direct marketer of his products.

In the marketing of meat, a similar change has taken place. In this case, of course, a manufacturing process, namely, the slaughtering, intervenes between the producer and the consumer. What has happened in this industry is that all steps in the process between the producer and the retailer have been centralized under one management from which undoubted economies accrue. However, the form of organization, instead of benefiting either the producer or the consumer, has become a monopolistic abuse, and probably an additional cause for dissatisfaction rather than any solution of the problem.

By one other method is the producer reaching the consumer more directly than the ordinary course of marketing; this is through the development of the package trade, which is becoming more and more important. By means of the package with a distinct label, the manufacturer is able to reach the consumer direct without the intervention of the middleman. Offsetting this gain, however, is the tremendous advertising expense, which it is not too much to say far outweighs the expenses and profits of the middleman. As a matter of fact, goods of exactly the same grade as those ordinarily put up in well-known packages, are sold in bulk at a very much lower price. A good example of this is flour. A quality of flour, exactly similar to that sold under a well-known name, may be purchased at from 85 cents to \$1 less on the barrel—and this does not mean that the flour must be bought in barrel quantities. It is, of course, reasonable that this should be the case because the expense of advertising is a tremendous one.

The fault which I have to find with our present system of marketing is not especially due to the rapacity or dishonesty of any group of men. There is no one group of distributors, even of food products, which is getting particularly rich at the expense of the consumer. The difficulty with the present system is simply that it is an obsolete, uneconomical, and wasteful arrangement of facilities for marketing food products. The middleman himself is as much a victim of the system as is the consumer.

The general high level of prices, of which we read much in the public prints and of which we hear so much discussion, is due in the last analysis to certain fundamental causes, chief among which is the increase in the supply of gold—the cheapening of our medium of exchange. If the monetary unit in which all values are measured decreases, then

the other side of the equation, namely, the price of commodities, must increase. Therefore, we find that prices are rising rapidly not only in the United States, but also throughout the entire world.

Among the various groups of commodities, however, food prices have risen more rapidly than the prices of many other groups of commodities. For instance the prices of food products have increased more rapidly than the prices of clothing, metals, fuel, etc. This is due in a large part to the fact that the food producing areas of this country have been greatly reduced, and that population has been rapidly increasing. The trucking areas about our large cities have been curtailed, and have been filled by a rapidly enlarging urban population which is pushing out into the suburbs with its homes. The farms which were formerly used for the production of staple food products are being converted into truck gardens. The grazing areas of the west, which have been used for the raising of cattle, are being converted into farms for the production of our staple agricultural products. Cattle raising has been pushed into the least fertile regions, and much of the industry has been forced entirely out of the country. The margin of production is being forced further and further from the fertile lands, and less and less fertile lands with higher costs of production have taken their place. Our tariff wall has also prevented the free entrance of food products—not so much on account of duties leveled directly against them as on account of the fact that the whole course of international trade has not been able to develop freely on account of our tariff wall.

A remedy for high prices will probably never be found in this country. For any considerable period of time, we may look forward to a period of continued high prices. This is especially true of food products, because it will be increasingly difficult for our agriculture to keep pace with a rapidly increasing population. This fact should make, and is making, us more careful about our methods of doing business and should lead us to eliminate as much waste and inefficiency in our methods of production and marketing as is possible.

Greater efficiency in marketing and production may be obtained, first, through intensive agriculture, and secondly, through simplified and systematized methods of marketing. In case of the latter, the essential object to be attained is the bringing of the producer closer to the consumer by eliminating as many of the intermediate steps and intermediate expenses as possible. The way in which the producer may be brought closer to the consumer is not to be found in any one

method or in any one improvement. This end can be accomplished only by a general and comprehensive plan of improvement. Some suggestions based on experience here and abroad, may however be made, which will show how some of the intermediate steps in marketing may be eliminated.

(1) For the producer one of the most hopeful developments in recent years has been that of coöperative marketing. I have already mentioned the success which has attended the efforts of the fruit growers of the west. Coöperative marketing by producers will do away not only with the middleman, but with much of the poor grading, careless packing, and wrong handling of products, which are so prevalent today. The essential functions of a producers' distributive organization are (a) to bring the products as directly to the market as possible; (b) to encourage the best methods of production; (c) to handle and pack the products as carefully and as scientifically as possible; (d) to grade products at their point of production rather than to have this done by an intermediate agent; (e) to stand for and to be responsible for a certain grade or a certain line of products; and (f) where necessary to act as a credit organization, to furnish credit to the members of the organization where needed.

(2) Doubtless one of the most expensive features in the process of marketing food produce, especially in our large cities (and nowhere is this so evident as in New York City), is the arrangement or rather the lack of arrangement of terminal facilities. In New York City for example, we find goods being brought into the city, oftentimes directly through the great and growing population of the Bronx, down to the lower West Side. Here the wholesale market is located and the great bulk of the food products for New York City is unloaded. Food destined for Harlem and the Bronx must then be carted from six to twelve miles. Carting is a very expensive item in New York City, on account of the congested condition of the streets and the heavy fixed expenses incident to a large city. With a more economical arrangement of terminals or with some sort of transportation facilities for wholesale food products, perhaps a marginal railroad, and with the establishment of wholesale markets, at least in the various boroughs, a large part of this trucking expense could be eliminated.

(3) Retail organization might also be somewhat affected by certain changes in the methods of doing business. No one who has visited England can have failed to observe the success of the coöperative retail distributive organizations there. A large part of the popu-

lation are members of these organizations, and are thus able to save a considerable portion of the prices which obtain in the private retail stores. The coöperative retail organizations are not always able to buy singly from manufacturers and producers, but in the true spirit of coöperation they are able to coöperate one with another and to buy their supplies in large quantities direct from the producer and the manufacturer.

The real function of public markets is the bringing together as closely as possible the producer and consumer. In New York City this function has entirely disappeared, and the city has become merely a landlord, from whom the retail stall owner rents his place of business. A municipal market, with a real market function, would receive the products direct from the farmer or producer and sell them by municipal agency direct to the consumer on a commission basis. A municipal market would doubtless be able to gain a trade sufficient to dispose of all qualities of goods and it would then be possible for a producer to send his products direct to the municipal market and have them sold at retail where he would be able to obtain the highest price possible.

Another method of affecting the retail distribution of food supplies is the organization of a semi-philanthropic retail company with limited dividends. Such a company would act as a check on high prices by means of competition, and with a sufficiently large organization, which might very well be in the form of a chain of large retail markets handling a varied line of food supplies, would be able to buy direct from the producer or manufacturer. With limited dividends and with public statements of earnings and prices, the consumer would have confidence in such an agency and would be able to check any extraordinary or unwarranted rise of prices.

(4) There are other minor suggestions which would tend to simplify the processes of marketing. The setting up of standard grades for canned goods, flour, and various package commodities would enable the housewife to buy goods of a given quality no matter under what label or brand, or no matter how extensively advertised they might be.

The publication of wholesale prices of food commodities would doubtless do much to restrict the high prices of the retailer. It would enable the consumer to find out exactly what are the wholesale costs of goods laid down in New York. The publication of wholesale prices is one of the explanations as to why such staples as sugar and flour are sold on such a narrow margin.

If the supplying of a community with its food supplies is a public utility, and if that service is now being rendered in a wasteful and inefficient method under private management and control, it is a pertinent question why should not the municipality or the state step in with some sort of regulation. At least a publication at specified times of the prices of foods will enable the consumer to get a correct and comprehensive idea of exactly what is going on. The problem is not one that can be handled without careful study or by persons unfamiliar with the difficulties and complexities of the situation. On the other hand, it is a problem which needs a careful, all-round treatment, and should not be attacked piecemeal, but only with a comprehensive plan of future development.

THE LAUNDRY PROBLEM IN NEW YORK CITY.¹

HELEN WOODFORD PRATT.

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It is a well known fact that as our civilization grows more complex, as industry and enterprise are more and more taking people away from their homes, the work of maintaining the home must be lessened, not only because the housewife has often not the amount of time she used to have, but because she has not the space and proper facilities for carrying on all processes that were at one time her chief occupation. This will account to us for the fact that there are approximately 6000 hand laundries and 250 steam laundries in the city of New York. These laundries could not remain in existence had they not enough trade to keep them busy and justify their continuance. The important thing at the present moment is to make the housewife realize that she is as responsible for the conditions under which her "wash" is done in these factory laundries as if that laundry were being done in her own home. It is the very ignorance of most women on this subject that makes the situation so acute, for if they would investigate the conditions under which much of their personal and household linen is washed they would realize not only the extent of the menace to the public health because of the unsanitary conditions, but they would also see how many men and women in the trade suffer because of the unorganized and chaotic state it is in at present.

¹ Presented at the Lake Placid Meeting of the Administration Section of the American Home Economics Association, June, 1912.

From our point of view the strike of the laundry workers last winter was of immense value because it brought before the public a vast number of startling truths which before they had not been aware of. The strike was called on what the State Board of Mediation and Arbitration later pronounced to be very legitimate grounds. The workers complained of the long hours, comparatively low wages, and in some cases, unsanitary conditions that were intolerable. They demanded a 54-hour week with a regulation of daily hours; the women workers demanded a scale of wages with a \$6 minimum, and a \$15 maximum, except in the case of hand ironers, who were to be paid by the piece, and who during a good week are able to make between \$15 and \$20. The Board of Mediation and Arbitration held hearings for several days in succession. The witnesses testified under oath and told stories of long hours and difficult working conditions that in most cases had the ring of sincerity. A member of the Consumers' League made an intensive investigation of a few laundries during the winter of 1910, but the League felt that last winter a more extensive one should be made and accordingly 60 laundries were visited between the months of November and March inclusive.

It might be well to briefly describe the different types of laundries. First let us take the "flat work" laundries: These laundries are usually very large and employ a great number of unskilled women and a proportionate number of men washers. As their name might convey, they do only flat work, that is, bed and table linen for hotels, steamships, Pullman and parlor cars. The hours in these laundries are of necessity very irregular. The hotel linen comes in pretty regularly, but the amount varies greatly, according to the season of the year. The steamship and Pullman car work is very hard to regulate. A steamer comes in late but the laundry must get her work done even though it has one or two days less than usual. These laundries are therefore never able to regulate their work so that it averages under a 60-hour week. The women employed in these laundries work chiefly on the mangles. This is not very skilled work, as already pointed out, is not paid well, and therefore draws a rather low type of workers.

Another and perhaps the most important type of laundry is the "rough dry" laundry, so-called because it returns clothes in a rough dry condition. These laundries formed the storm center of the strike, for we see in them the worst features of the trade. The "rough dry" laundry is also a factory steam laundry, and its particular func-

tion is the doing of washing and starching for the hundreds of little so-called hand laundries scattered through the city. A cut-throat competition exists among these "rough dry" laundries for the work of the hand laundry. Every proprietor of a "rough dry" laundry acknowledges that he can not do the washing at the low rate at which he does it and make it pay, but if he sets his price at ten cents a net, a competing laundry may send out an agent to the hand laundries and offer to do their work for five cents a net, making it impossible for the other man to retain his higher price and still keep his clientele. These laundries receive the work from the hand laundries in nets, and these nets are acknowledged to be the greatest evil of the laundry trade.

Still another type of laundry is the "wet wash" laundry. These are run much as the "rough dry" laundries only they do not dry the clothes. They return them either to the hand laundry or direct to the customer, wrung out but still very damp. These laundries as well as the rough dry laundries do their biggest business with the hand laundries.

The fourth type of laundry is the "bundle" laundry, so-called because of the fact that they have their own branch stores and collect the bundles of laundry directly from their customers, returning them direct when finished. This is by far the best type of laundry. They have the most particular trade; people who want their work to be done under good conditions and done well and who are willing to pay for it. There is much less competition among this class of laundries, as very few of them do any work for the hand laundries. The prices among the "bundle" laundries are almost identical, and it is simply a question with them of securing and maintaining a good private trade.

The last class to be considered is the so-called "hand" laundry: This name is a farce, as in the course of our investigation we only found two "hand" laundries that actually did their own washing on the premises. The remaining 5998 sent their clothes to be washed at the "rough dry" laundries or in a few cases, the "wet wash" laundries. The "hand" laundries do their own ironing and for this reason lay claim to their name, but "bundle" laundries also iron by hand, and the contrast in working conditions between the little crowded "hand" laundry and the large well-equipped "bundle" laundry is not advantageous to the former.

In our investigation of 69 laundries, 19 were "flat work," 17 were "rough dry," 6 were "wet wash," 14 were "bundle," and 12 were

"hand" laundries. Only 6 laundries in New York City had signed up with the Union. We investigated them thoroughly, and found that in every case the wages and hours were unusually good (of necessity because they were scaled by the Union) but the sanitary conditions in all but one instance were very bad.

As a result of our investigations we came to the conclusion that the crying evils of the laundry trade were (1) the use of nets, (2) the irregular hours, and (3) the bitter competition among the "rough dry" laundries.

As to the first point, the nets resemble heavy fish nets and hold from ten to twenty pounds of clothes. Each "hand" laundry has a supply of them and sends its work done up in this way to the "rough dry" laundry. The nets are not supposed to weigh more than ten pounds, but in a great many instances they weigh nearer fifteen, and it makes their handling very difficult. Their weight is practically tripled after washing, so that a net weighing ten pounds before weighs thirty after being washed, and one weighing fifteen weighs forty-five pounds. The men complain of the great difficulty of lifting these heavy nets from the wash wheels to the extractors, and one of the demands of the Union is that no man shall be required to handle a net weighing over ten pounds when dry.

This, however, is not the worst feature of the system. The greatest objection to the use of the net is the fact that every one's clothes are mixed together with no regard for the varying degrees of cleanliness and the fact that some clothes might require a more thorough washing than others. The thought of one's linen being washed thus promiscuously is not pleasant and I think few women realize the danger of the easy spread of disease made possible by this method. The only assorting undertaken is done by the hand laundries. They are forced to separate colored from white clothes, as a strong bleaching fluid, used in the washing of the white nets, would be fatal to colored garments. This bleaching fluid, though the housewife may justly complain that it rots her clothes, performs an exceedingly valuable office. It is so strong that even medical authorities acknowledge it to be a perfectly adequate disinfectant. The so-called colored net is left however without any sanitary precautions being taken in its behalf. Colored clothes cannot stand the bleaching fluid and are therefore washed in a very mild solution, which has little disinfecting power and makes the mixing of clothes in these nets an exceedingly dangerous and unsanitary proceeding. Commissioner Williams, after he had gone into the

subject of nets very thoroughly, felt that we were in dire need of legislation to regulate their handling and if possible we should secure legislation to abolish them. If the net could be abolished it would not only do away with the most unsanitary features of the laundry trade but it would lessen to a great extent the competition among the "rough dry" laundries, for the question of the price of washing per net would not be involved at all, and the prices charged would have to be put on a different basis, probably one similar to that of the "bundle" laundries.

The second evil mentioned, that of irregular hours, affects the worker directly, whereas the first affected chiefly the consumer. It might be well to mention here, however, that the washer who handles the nets before they are bleached runs a great danger of catching some disease, as many contagious diseases can be thus contracted.

To return to the irregularity of the hours, here again the "hand" laundries are very much to blame. They send their nets to the "rough dry" establishments and demand that they shall be done within a certain time, most often within a very short time. They have no regular system of delivering their work to the "rough dry" laundry. They do not request their customers to send their work at regular intervals and therefore in the long run the employee of the "rough dry" laundry has to suffer because of this lack of system. An average week as testified to by the majority of the more skilled workers in laundries, that is hand ironers, collar dampeners, and feeders and starchers is as follows: Mondays, 1 p.m. to 9 p.m.; Tuesday, 7:30 a.m. to 8 p.m.; Wednesday, 7:30 a.m. to 10 p.m.; Thursday, 7:30 a.m. to 10 p.m.; Friday, 7:30 a.m. to 10 p.m.; and Saturday, no work, making (with an hour for dinner) a total of 60 working hours a week.

This is a legal week under the factory regulations, but the 3 long days of 13½ working hours each, coming in direct succession, are illegal, as the law sets a 12-hour limit to the working day. The strain on the worker, because of these long days, is very great and the rest at the end of the week is often not adequate. The women complain of the physical strain. The long hours of standing (often on damp floors) combined with the real physical effort required by the various processes, tells on them eventually and many a woman has to leave the trade a cripple from rheumatism or broken down generally. The laundry trade has no distinctive "industrial disease," but rheumatism is common among workers in laundries where the drainage system is inadequate.

The particular woman who gave this schedule was a collar starcher, earning a flat wage of \$10 a week; she had an hour for dinner in the middle of the day but ate her supper as she worked. There were many women who testified to working until 11:30, 12 and even 1 o'clock at night as quite an ordinary thing. These women, though they received no extra pay, were generally piece workers, and during a heavy week their wages sometimes went up as high as \$18.

We feel that if the "hand" laundries could be forced to regulate their deliveries to the "rough dry" laundries and the latter could be made to plan a regular week without the free morning on Monday and with a half day on Saturday, the work would then be fairly equalized and the workers would not feel the strain so keenly. The "hand" laundries would need the coöperation of the consumer, in order to do this. No woman should consider it her prerogative to go into a laundry with a bundle of her husband's collars and shirts and insist that they should be sent to her the next evening. She is only adding her share to the tremendous amount of irregularity already in existence, and she should plan as she would in her home, to have the laundry done on a certain day and not expect it to be returned before a reasonable length of time. The Union demands a perfectly regular week, the hours being from 7:30 a.m. to 6:30 p.m. on every day except Saturday, and Saturday from 8 a.m. to 12 noon.

As a whole, wages in laundries seem to be fairly good. A girl can earn a good deal more in a laundry than she can in a department store, but her hours are longer, her surroundings less agreeable, and she has fewer holidays and scarcely ever a vacation. As stated before, wages differ very greatly in the various types of laundries. The "bundle" laundries have undoubtedly the best buildings, the best equipment, and in most cases perfectly sanitary conditions, but as a rule their wages are lower than in the "rough dry" laundries. In most "bundle" laundries the little girls who shake out for the mangle girls (this is the lowest position in a laundry) receive sometimes as low as \$4 a week; the mangle girls average \$5; the collar girls \$7; the starchers and ironers anywhere from \$8 to \$15. In the "rough dry" laundries the wages do not run very much higher than \$15 but the little girls are generally started at \$4.50 or \$5.

One might judge that a logical explanation of this is the fact that the "rough dry" laundries have not expensive plants to keep in order, have not expensive equipment to keep in repair, and that they spend very little money on sanitary precautions or on improving conditions for

their employees. We believe that in the industrial world wages and the length of the working day are foremost in importance to the worker, but we believe that also the menace to the health of the whole community, which is involved when work is allowed to go on under such conditions, is certainly next in importance. Therefore the Consumers' League urges the patronizing of the big thoroughly organized and splendidly equipped "bundle" laundries. In almost every case the proprietors of these establishments would be glad to raise the wages of their employees if they could do that and at the same time maintain an expensive plant. We feel that if the weight of public favor could be thrown on the side of these large laundries the hundreds of the small laundries could not remain in existence and in that way many unsanitary plants would be closed.

One can make several logical suggestions for improvements in the inspection and regulation of laundries. Considering laundries from the standpoint of the public health it would be an invaluable remedy for the situation if we could have regular supplementary inspection by the Board of Health. The Board of Health has power to act at once upon anything they feel interferes with the public welfare. If, therefore, their inspection could be supplemented to the inspection of the labor department, they could look after the distinctly sanitary side of the problem and could confiscate objectionable nets or condemn inadequate drainage systems or do anything which they felt would lessen the dangers of the trade.

Another practice which we feel needs corrective legislation is the placing of laundries in basements. Out of the 69 laundries visited, 5 did their entire work in the basement and 13 had their wash kitchens there. This is exceedingly objectionable as the air in a basement is apt to be poor at best, and as it is very difficult to prevent steam from escaping in the wash kitchens it makes the atmosphere almost unbearable. The dampness also is increased, and as the floors are generally quite wet under the best conditions, it makes it a dangerous thing for the washers to stand on them hour after hour. We feel that the proper place for a wash room is on the top floor of a building where good ventilation is more easily secured. We found only two laundries having their wash rooms on the top floor. Of the laundries investigated 19 occupied one floor only, so that every process went on in the same room. This is also undesirable, as the wash kitchens are not separated and it means that the steam permeates the whole floor. We would urge legislation in this line just as we urge it regarding cellar bakeries.

Persons desiring to establish laundries should first be compelled to secure a license, and licenses should not be issued for cellar laundries.

The practice which needs the most immediate and stringent attention however, is the use of nets. The best thing would be to abolish their use entirely, but even so, the problem of the colored clothes would still remain. Physicians have recommended that these clothes be put through the hot air sterilizing process, which is used by the Board of Health in cases of clothing belonging to persons who have had contagious diseases. This would be a rather expensive plant for laundries to install, but the majority of laundries have drying rooms and there is no reason why they could not put in a similar apparatus to disinfect the clothes.

This whole problem is one that must be solved by the consumer. We can no longer plead ignorance. We know of the very undesirable conditions which exist; we know of the grave dangers we are running; we know how the irregularity of the trade causes the long hours; we also know that it lies within our power to remedy this irregularity to a great extent. The general public must be made even more familiar with the fallacy of the "hand" laundry, and with the unsanitary conditions of many of the "rough dry" laundries. Then we must urge the patronizing of the finely organized factory laundries with their comparatively short hours and excellent working conditions. With the favor thrown their way it will simply be a case of the survival of the fittest.

SCHOOL LUNCHES AND MEDICAL INSPECTION.¹

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If we approach the problem of school lunches and medical inspection with a consciousness that they are interdependent and coöperating to secure the same end, we shall better appreciate their educational importance. The school lunch problem is not essentially new. At present, because of various experiments in this country, it stands out in relative importance as compared with the sown field of medical inspection wherein a wider experience has demonstrated its educational value. The purposes of school lunches and medical inspection are largely identical. Both are designed to act in a preventive and curative way in all phases of physical and mental health. Medical inspection seeks in part to eliminate contagious diseases from the public schools, while school lunches aim to increase the resistance of children to contagious diseases. Medical inspection seeks out physical and mental defects; school lunches aim to prevent or relieve physical or mental defects. The common ground of school lunches and medical inspection might well be said to be the prevention, determination, and relief of malnutrition.

Harrington has well stated that education must consider the student as the subject of its teaching. It is easy enough to change teachers and to alter curricula, but much skill and judgment are required to secure improved physique and mentality of children that they may glean the greatest amount of education from the fields of knowledge in which they are permitted to browse. Intellectual development and physical improvement are interwoven. The basis of an impaired mentality is what the educator must seek. Possibly malnutrition is the origin, if so the cure might be in the school lunch. The great difficulty with the statistics of medical inspection is that while they record many symptoms they fail to tabulate the causative factors. The personal equations of the examiners and the lack of judgment in differentiating the significant defects render most of the available statistics of little value.

¹ Presented at the Lake Placid Meeting of the Administration Section of the American Home Economics Association, June, 1912.

Porter of St. Louis has demonstrated that well-developed children take a higher rank than under-developed children of the same age. There is a noteworthy ratio between physical defects and school progress; in brief, the more defects, the slower the advance in school.

In the twelfth report of Dr. Maxwell we find this statement: "Provision should be made in all schools for supplying food at cost price to the pupils in the middle of the day." The educational context of this sentence indicates that some educators are beginning to appreciate the necessity of full stomachs for the school children as a prerequisite to securing full minds. I do not mean by the expression "full stomach" the ordinary common interpretation of quantity, but of the quantity and quality which is essential for the maintenance of physical health and mental improvement. As Bacon states "the brain is in some sort in the custody of the stomach."

It is most striking that lunches are now being supplied to cripples, anemics, tuberculous, and sub-normal children of various types for curative purposes after the medical inspector has called attention to the physical deterioration of the children. Far more sane, far more wise would it be to seek to afford sufficient nourishment to school children in order to maintain them in health or to raise their standard of physical condition, instead of placing a premium upon disease as the basis of securing the benefit of school lunches.

In every community there are many poorly fed children, the inadequacy of whose diet is shown in part as anemia, underweight, enlarged glands, and similar symptoms. Available school lunches would be a boon to such children and are essential for supplying proper nutriment to many children going to school from homes that are unable to supply the requisite daily food, either from ignorance or poverty or both.

Malnutrition is a factor, though to be sure not the only one, in the etiology of tuberculosis, adenitis (enlarged glands), anemia, defects in vision, chorea (St. Vitus Dance), and functional disorders. The immense proportion of dental defects has been given undue attention without appreciating the fact that the permanent teeth develop during the school period. The importance of proper food for the development of dental structure has been lost sight of in contemplating the enormous number of cavities. Poor food, deficient in lime and other salts, means poor teeth and consequent decay. As the result of decay, infection, and tooth-ache, proper mastication becomes impossible, appetite decreases, malnutrition supervenes. There then results a

lessened supply of food for dental growth and more decay ensues and a vicious circle is formed.

A second factor in malnutrition to which insufficient attention has been given, is the effect of the under-nourishment of the years previous to a child's entrance upon school. The relative starvation in proteids, lime, iron, calcium and magnesium during the first five years of life produces the child suffering from malnutrition upon entrance to the public school. The report of the medical inspector, however, will probably class such a child as belonging to the group with such physical defects as enlarged tonsils, anemia, or enlarged glands. The diagnosis of malnutrition is not made if any other defect is present. The dependence of such defect upon malnutrition is not entered into the record and so the statistics of medical inspection as related to malnutrition are decidedly false and misleading.

School lunches are serviceable to the growing children by supplying nutrients that are not adequately secured in the home. In addition to the physical betterment there is a distinct educational gain through the improved mentality of the child. If one recognizes the advantages of feeding anemic children and tuberculous children, it seems unquestionably of advantage to afford similar opportunities to the brothers and sisters of these weakest children so as to prevent their physical deterioration. Chronic underfed children are far more vulnerable to contagious disease and more susceptible to protracted colds and bronchitis. Their poor musculature and sluggish circulation make them more likely to fall victims to the various diseases to which they are exposed through the intimacy of school life, and as a result their absences are more numerous. For the same reason their convalescence is retarded, their complications are more numerous, and their loss of education and training through absence is far greater than that of other children of the same age in a better state of nutrition. One of the underlying factors in chorea is a disturbance of nutrition. The New York Committee on the Physical Welfare of School Children found 26.2 per cent of chorea among children suffering from malnutrition as opposed to only 3.6 per cent for 1400 children examined by them.

In view of our present clamor for fresh air classes, it is essential to consider the necessity of school lunches, inasmuch as increased feeding is required to enable children to live comfortably and study in the open air during the cold seasons of the year.

Viewing it from another angle, school lunches mean better diges-

tion, less bolting of food, and a diminution of the use of pushcart products. Healthful, clean, and nutritious foods offset the adulterated, dusty, irritating articles of diet found for sale on the street corners. Bustle and fear of tardiness are eliminated and the tendency to functional nervous disorders is lessened. The purpose of school lunches is not to relieve acute hunger, but to relieve chronic underfeeding. Hoggarth has defined malnutrition as "an abnormal or disordered growth in the development of the tissues and organs of a child's body not necessarily synonymous with underfeeding," and he wisely states: "Malnutrition is at once the most common, and until recently, the least observed of all the unrecognized diseases and affections among children attending elementary schools." The problem of malnutrition is not concerned merely with the breakfastless children or those without any particular single meal, but with all the children who for long periods of time are receiving at home a dietary that is not adapted to their needs, and in consequence of which there is marked physical deterioration. If we consider the amount of malnutrition throughout the country, we can more readily appreciate the truth of this statement.

Dr. McMillan of Chicago found 15.9 per cent of kindergarten children physically below par and estimated that underfeeding was the cause in 11 per cent. Dr. MacKenzie regards one-third of all the school children in Edinburgh as poorly nourished. Dr. Maxwell is reported as saying to the National Educational Association in 1904 that there are hundreds of thousands of children unable to learn because of hunger. Dr. Francis Warner and Hack Tucke found 28.5 per cent of London school children suffering from deficient feeding. The New York Committee on the Physical Welfare of School Children in 1907 declared 13 per cent of 990 children examined to be suffering from malnutrition, and Dr. Sill in 1909 estimated that 40 per cent of the children in the elementary schools of New York City were illy nourished. The New York School Lunch Committee in 1910 in an examination of 2150 children adjudged 13 per cent to be marked cases of malnutrition. In Chicago in 1908, of over 10,000 children examined 12 per cent were reported as suffering from malnutrition. In Boston in 1909, underfeeding was found in 16 per cent of over 5000 children. In Philadelphia in 1910, 24 per cent of 500 children examined were found to be suffering from underfeeding. In St. Paul in 1910, 20 per cent of 3200 children in schools in the poorer districts were reported as manifesting the evidences of marked underfeeding.

What does all this underfeeding mean? It means that the school lunch problem is far more vital than has been considered. The problem of under-nourishment has scarcely been touched. I admit that the causes of under-nourishment are numerous and closely connected with faulty housing, overcrowding, low wages, under-employment, alcoholism, poor hygiene, and ignorance of food values. This is far different from the acute hunger which forces families to seek aid from organized charity.

Taking the estimate of Dr. Underhill, based upon the price of foods in 1907, that 22 cents per day per man is the minimum expenditure for food permitting a normal family to maintain physical efficiency, we can appreciate the economic basis of much of our malnutrition. The Committee on the Standard of Living in New York City has established \$825 as a conservative estimate of the amount necessary to maintain a proper standard of living in the Borough of Manhattan. This means an average weekly income for 52 weeks of \$16 a week. The effect of income on child growth has been shown by an analysis of the average height and weight of school children in Liverpool, where at seven years the wealthy children measured 3 feet 11 $\frac{3}{4}$ inches and weighed 49 pounds, while poor children measured 3 feet 8 inches and weighed only 43 pounds. At 14 years their heights and weights were respectively 5 feet 1 $\frac{3}{4}$ inches and 94 $\frac{1}{2}$ pounds as compared with 4 feet 7 inches and 71 pounds.

In a memorandum of the British Board of Education we find noted: "Medical inspection seeks to secure ultimately for every child, normal or defective, conditions of life compatible with the true education, which is that free and effective development of its organic functions, special senses, and its mental powers." That this opinion is shared in the United States is evidenced by the provisions for exceptional children in this country. In 898 cities there are 207 schools for backward children, 94 for defectives, and 25 open air schools, while 444 cities provide for physical examination for defects.

The symptoms of malnutrition which have been overlooked are noted as anemia, pallor, muscular weakness, squints, diseases of the external eye, lassitude, inattention, backwardness, and mental dullness. Among the results are stunted growth, delayed physical and mental development, weaknesses of the spine, increased susceptibility to infectious diseases, and marked liability to tuberculosis. Twenty-five per cent of our public school children fail to attend school 75 per cent of the time. Preventable disease is a large factor in this unfor-

fortunate number of absences, and malnutrition plays no small part in preparing the soil for such preventable diseases.

In Berlin in 1906 and 1907 8.7 per cent of the children entering school for the first time were barred because of ill health, and 25.8 per cent of the children were placed under observation because of defects.

Dr. Van der Slice through a questionnaire to school principals as to the causes leading to the lowering of vitality of school children, received the information from teachers that 42 per cent of the stress in the first grade and 12 per cent in the seventh grade is due to poorly cooked, innutritious, or insufficient food. Dr. Gastpar of Stuttgart has demonstrated that the proportion of defects varies with the state of nutrition of the school children, and the better the state of the nutrition, the fewer the number of defects.

The reports of medical inspections are not uniform as may be judged by the fact that in 1906 malnutrition was reported in New York City as 6.3 per cent while Minneapolis in 1908 reported 23.3 per cent. It is obvious that such disproportion does not exist. This fact is accentuated by a comparison of the diseases and defects in the two cities, which are closely related to the problems of malnutrition. For example:

Relative prevalence of diseases in school children.

KIND OF DISEASE.	NEW YORK, 1906.	MINNEAPOLIS, 1908.
	<i>per cent.</i>	<i>per cent.</i>
Anterior cervical glands enlarged.....	37.3	53.0
Posterior cervical glands enlarged.....	11.0	
Chorea.....	1.7	0.2
Defective vision.....	22.8	23.9
Defective teeth.....	55.0	43.5
Hypertrophied tonsils.....	23.3	31.1
Adenoids.....	12.0	12.8

Obviously these figures relating to the symptoms of malnutrition show that the New York figures of 1906 are too low.

The relation between defects of vision and malnutrition is suggested by the examinations in Cleveland in 1907 when the defects of eye-sight in well-to-do districts were stated to be 32.4 per cent, while among the children in congested districts, they were 71.7 per cent. Appreciating the importance of a correlation between malnutrition and defects of vision, which are not all essentially optical in character, it is well to consider the extent of defective vision in some of our cities and states.

Observations on defective vision in children.

LOCALITY.	NUMBER EXAMINED.	DEFECTIVE VISION.
		<i>Per cent.</i>
Bayonne.....	4,610	7.7
Camden.....	10,028	27.7
State of Massachusetts.....	402,937	22.3
Milwaukee.....	1,960	14.9
New York City.....	79,065	31.3
Pawtucket.....	4,663	11.1
Worcester.....	11,953	19.1

The nature of the defects of vision is not stated in definite terms.

The statistics of medical inspection make another error that is extremely misleading, inasmuch as they are calculated all too frequently in terms of the number of examinations made instead of the number of children examined. It is, therefore, impossible to come to a correct understanding as to the exact number of defects in any one child, or to an appreciation of the relative number of children in the school population suffering from any single pathological condition. The total absence of the term "malnutrition" in many statistical tables shows that this phase of the problem is entirely omitted in a consideration of medical inspection. For example, the state of Massachusetts in 1906 and 1907 reported the examination of 343,000 children having 27,342 defects, but malnutrition is not numbered among the conditions reported.

Dr. Maxwell in his tenth annual report claims that 60 per cent of defective children suffer from malnutrition. This is thoroughly in accord with Dr. Collie of London who in referring to mental defects stated: "Their brains are starved and naturally fail to react to the ordinary methods of elementary teaching."

Now it naturally occurs to most people to ask, would school lunches be of any service in relieving the conditions that have been described? Can school lunches overcome the short-comings of home feeding? If a school lunch is given, will it off-set the disadvantages of the other meals at home? These natural questions are answered, suggestively at least, by several experiments. The experience of Bradford, England, has been supplemented by the experience of many open air schools in this country, but leaving aside for the moment the question as to the value of fresh air, the New York School Lunch Committee studied two groups of children, both adjudged to be suffering from malnutri-

tion, one receiving a school lunch and the other having no change in its daily régime. The group receiving the school lunch averaged a gain of $10\frac{1}{2}$ ounces in three months as compared with a gain of $3\frac{2}{5}$ ounces for the children not taking the lunches in the same period of time. In Philadelphia in 1911, this experiment was repeated, and a group of 40 conspicuously ill-nourished children gained 1.78 pounds in 3 months with lunches as compared with 0.8 pound for 40 similar children without the lunches. The children in fresh air classes, as it has been well known, gain in weight and hemoglobin and make marked advances in their studies. The children in one fresh air class in New York City during 1911 who were 11.6 per cent below normal weight at the beginning of the school year, ended the season only 7.4 per cent below normal weight, with an average individual gain of 4.64 pounds. Furthermore, and this is the striking part of the value of school lunches, during the holidays, Thanksgiving, Christmas, and Easter, the children on their home diet lost, on the average, 1.72 pounds per child. The fact that the school lunches marked practically the only difference in their life between the vacation period and the school period, disregarding for the time the added stress of school work, gives valuable testimony as to the efficacy of school lunches in relieving malnutrition to a marked extent.

It is needless to go further into details. The relation between school lunches and medical inspection is patent. Medical inspection should be so thorough as to indicate not merely the names of various symptoms and conditions, but should suggest whether or not malnutrition could possibly be an underlying factor. Under such conditions school lunches could serve in a curative way to assist in the relief of the conditions reported by medical inspectors. Frequently medical inspections would also suggest those children not possessing marked defects, but who are very close to the health poverty line, and for them school lunches could be instituted as part of the preventive measures now so thoroughly esteemed. Most civilized countries have already installed school lunches as a natural and normal part of an education movement without laying unnecessary stress upon its value as a health measure. As medical inspections are regarded to be of advantage to the school system through the lessening of disease and the improvement of the mental calibre of the children, so school lunches may be regarded as a valuable means of decreasing the number of absences and inattention, at the same time increasing mental activity and building up the physical health of our school children.

THE \$500, \$1000, AND \$2000 INCOME.¹

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In a meeting of a so seriously-intentioned society as the American Home Economics Association, no subject, with the sole exception of pure foods, has a right to a larger space on the program than the one which we shall discuss. With several government volumes already recording the findings of various committees of investigation into the increased cost of living, and with Ex-President Roosevelt and others promising additional inquiries, their promises leaving the implication that having discovered the cause they will immediately remedy it, it is meet that women in every part of the land shall seriously study how they will spend the wage so hardly come by on the part of the wage-earner—that the wisdom and skill in the spending shall match the earnestness and zeal in the earning.

It is time that women definitely discuss the actual value of a loaf of bread in terms of flour, labor, and fuel, and compare the result with the price paid by the consumer when ordering by telephone, delivering by wagon, special and hurried, wrapping, bookkeeper's time for the account, and other expense accessories are added. Whether or not we shall have coöperative bakeries, laundries, groceries, and markets should enter into discussion of this subject; whether or not larger appropriation of money and longer time should be given in the public schools to training in housewifery, also belongs in the argument; but most of all should come the evangelist who shall have the power to awaken all women to the appreciation of the fact that the labor and strain of the husband in earning any one of the stated incomes, should be met by similar earnestness and expression of power on the part of the women in the spending.

Women are the spenders of most of the money that is earned. The laborer who gives the pay envelope to the wife on Saturday night knows this well; so does his wife to whom, in the spending of the same, with all our theories of percentages, food values, and textiles, we have little

¹ Presented at the Chicago Meeting of the National Education Association, July 11, 1912.

to impart, so deeply has life driven the lesson. She knows very well what can be realized from chuck, brisket, and plate cuts of meat. The teacher of household science must gather her classes from a higher social stratum before she will find real ignorance on these subjects. It is true that she can teach the children of the proletariat little charms of preparation and serving which they prize and have joy in taking part in, but the keen wisdom in marketing which poverty has forced upon them has many a lesson for the expert teacher.

Students of theoretical budgets have worked out many elaborate schemes of ideal divisions of income, which, after all, are a generalization from the experiences of the race, and not in any respect original discoveries of methods by which clothing may be increased by diminishing rent or cost of food. All income distribution must in the last analysis base itself on the unit and not the family, but the exact apportionment need, however, concern only such as elect to consider these incomes in a severely academic manner. Since the intention of this paper is rather social and observational, consideration of such points is left to others.

Information for the present discussion has been gathered from many sources, including governmental researches, Mrs. More's admirable work on workingmen's budgets, settlement researches in eastern cities, the very valuable reports on Chicago housing conditions by Miss Breckinridge and Miss Abbott, some very naïve and interesting data furnished by New York public school children through the efforts of an exceptionally valuable principal, and particularly work done by the household arts pupils in Chicago high schools. The information and conclusions of the trained social workers are reliable and workable, they having sifted, preserved, and recorded the matter necessary for generalization. The data and conclusions of the elementary school children and the secondary school pupils are valuable for the illuminating glimpses of the home feeling and attitude toward the life struggle as, for example, the finding that under the heading of amusements, at least one-fourth of the girls state that the girl of 16 years and the boy of 12 years must earn the money for themselves and a girl of 9 years. This computation is made with delightful cheerfulness and no expectation of failing of sufficient diversion. Extensive explanations are made as to why larger allowance is made for the clothing for the girl than for the mother, the implication being that this fact is derogatory to the girl's character unless she makes it quite clear that the condition is temporary.

One of the most striking observations was that the girls who came from homes of small incomes had vastly the better judgment in the value and distribution of money. There were but three pupils of the number who estimated constant hired service in the \$2000 income, and but 25 out of 870 girls who estimated occasional hired service (like washing). Not any girl included any hired service in the \$1000 or \$500 income. Only 11 omitted savings as an inevitable apportionment in the \$1000 and \$2000 incomes, and more than half of the number included insurance in all three types.

The \$500 income instantly became the center of interest to the investigators, since the members of families of this group rarely reach high school, and never unless they are in some way self-supporting. They needed to be constantly reminded that thousands of families are living on that and less. It then became a problem carrying its own satisfaction in academic solution. It seemed to them, as it does to most people, that in the United States with its comparative freedom from caste and inherited privilege, and its half a fruitful continent to feed a nation, it should be impossible that "ten millions of people are sunk in poverty, four millions of them in receipt of relief"—but at any rate we are so informed by no less an authority than Robert Hunter. Half a million laborers in Illinois alone earn an average of only \$575 each in a year, and this provided they are employed every working day. The vast number earning below \$500 who create this average is appalling to the social worker and should be startling to those enjoying the grace of comfortable incomes.

In the consideration of all the incomes, the ordinary distribution has been used of food, rent, fuel, lighting, clothes, and sundries.

In a carefully compiled government study of 65 average families, consisting of husband and wife and five children, the following figures resulted for the year.

Food.....	\$193.76
Rent.....	86.31
Fuel.....	23.90
Lighting.....	3.69
Clothing.....	54.18
Sundries.....	92.16
	<hr/>
	\$454.00

The item of sundries includes insurance, which most of the families maintain; church, to which many of them contributed; the doctor.

school books, carfares, and other small expenses. Estimating this family as regards food as 4.85 men, the food cost less than 80 cents a week apiece, or less than 12 cents apiece per day. It means all the train of incapacities which belong to under-nourishment, anemia, rickets, susceptibility to disease, inability to do mental work, and frightful strain on moral stamina. Why marvel at shiftlessness, improvidence, bad housekeeping, and yielding to temptation? Marvel, rather, at the persistence of the life spark. The item of fuel \$23.90 is increased in interest when it is remembered that the cost of fuel to the poor is increased often more than 50 per cent by reason of their being obliged to buy coal by the bucket and wood by the bundle. It is useless for the economist to counsel the poor on this subject. The woman has not and never can have the money to buy coal by the ton, flour by the barrel, or canned goods by the dozen. One child states innocently that fuel may be had for nothing by the children who hunt it on the railroad tracks. Our tradition that economic precocity should not be forced upon children sounds flat and tasteless as a subject of discourse with a child speaking thus.

The rent item of \$86.31, or a trifle more than \$7.00 a month, will mean little to people who have not seen the places which can be had for such prices. The reports of Miss Breckinridge and Miss Abbott on Chicago housing conditions are vivid and accurate, setting forth with minute particulars the places out of which thousands of children come daily to the great public schools, confidently expecting the secret to be revealed to them whereby their condition will somehow be magically changed.

The item for clothes for this average family of seven is \$54.18 for the year for all. The wife of one of our presidents once chose to tell the women of the country how to dress on \$100 per year, and great and loud was the outcry. If any of the women of the 10,000,000 whom Hunter describes, and whom all school teachers know, interested themselves in the controversy, they must have considered it about as entertaining as a recipe for enduring the tedium of a ride in the park in a touring car. Their clothing is haphazard, second-hand, and insufficient. They suffer excruciating misery in winter. The children leave the school room reluctantly, clinging to its warmth and comfort as long as possible. The wretchedness and squalor of the clothes of these poor kill the self-respect of the wearers as fast as they reach consciousness of differences.

The heart of childhood has fires of joy which nothing can quite quench, and no spectacle is more appealing than the grace and aban-

don of these children flinging themselves into the spirit of the folk-dance unconscious of any drawbacks in heavy and broken shoes or ill-fitting and ragged clothes. If one wanders long and far enough in the public schools, one finds a great number of teachers who make, up to the children in many ways for the burdens which society lays on their shoulders.

Like Tolstoi and one other, we ask, "What then shall we do?" The public school patiently takes one burden after another upon itself as society wearies or fails under the load, but can society devise any scheme by which the public school may force society to believe that the laborer who works hard every working day and is sober and self-denying, should somehow receive more than \$500 a year as a wage for the tireless labor of production, sending in abundance to the markets of the world what immediately returns as a stream of gold? Five hundred dollars cannot clothe, shelter, and feed a normal family, with high resulting efficiency. Thousands of families are subsisting on it, but society will ultimately pay.

It is comparatively easy to work out the budget of the family with only \$500 to provide for 365 days. One need not worry over percentages and logical divisions. If the children are naked, spend some money for clothes and go without food; if they are hungry, buy food and go naked; if the rent is due and the landlord impatient pay it and go without both. Books are no problem, since as one child very simply states, "Of course the children of this family will have fund books," meaning the books furnished free to indigent children in schools.

The Industrial Education report of 1900 has an illuminating bulletin on what the trained and untrained man can earn. The man we have been considering is untrained and at 35 years his maximum of \$640 is reached, when he declines steadily to \$200 at 65 years. The trained man on the other hand at the age of 35 years has reached \$1270, climbs on to \$1365 at 45, and declines to \$1000 at 65 years.

In turning to the budget of \$1000, the sum is so princely in the light of the \$500 family that one is tempted to become scientific. Indeed, to use the city of Chicago as an illustration of a large city, it is found by generalization from the latest census report that \$1202.55 per year is the average wage of the salaried person, the term salary applying to the person paid weekly, monthly, or yearly in distinction from the one paid by the day. There are in this city 54,821 such, who on this average salary support from one to seven and often more people. Add the fact that the purchasing power of these dollars is steadily decreasing, so that the money which would have purchased 100 loaves

of bread 10 years ago will buy but 95 today "with no relief in sight," one is forced to the experiment of attempting to make mathematics take the place of bread and butter, and long study of the method of spending the money make up for the meagreness of the amount to be distributed.

Dr. Engel teaches that whatever the income, we shall find the items of rent and clothing maintaining a constant average for each 25 per cent of the income. Mrs. Richards differs so slightly from the Engel generalization that the variation may be ignored. It is a very interesting phenomenon that it is the experience of the race upon which we depend for scientific data. None of the sociologists pretends to teach that the world is doing the thing wrongly. They simply arrange the data in an orderly way and call it a science, which after all, is the definition of science. In shelter, people, like water, tend to seek their level, and if they ambitiously or unwisely strive to reach above it and violate the law of ratio, again, like water, they are unstable and tend to calamity.

Thus, if the \$1000 salary is drawn upon for more than \$250 in rent, food or clothing or other well-being is endangered. So definitely is this fact fixed in the minds of most people that we decide promptly and with great definiteness concerning our neighbors, that they are or are not living in a house they cannot "afford." Hygienic conditions above all, availability to school, and other cultural influences, character for decency of the neighborhood, kind of highways, transportation, lighting—all must enter into the selection of this house which shall cost the tenant but a trifle over \$20 a month. The pushing on of tenants caused by business occupation of the neighborhood with consequent increase of value of ground space, as well as improvements adding to value of the environment, forces this \$1000 family farther into the suburbs where soon the inherent and compelling desire to own one's home brings a deepening of thoughtfulness about expenditure which presently analyzes the budget quite as skillfully as Engel with all his mass of material. Nothing can more swiftly and surely steady and improve good citizenship than owning a home. It quickens the imagination as to what it means to the other fellow if a neighborhood is degraded by liquor selling, the social evil, or whether or not it is a hardship to have poor streets, poor lighting, poor sanitation. The welfare of the group is a matter of indifference to the casual dweller, but the family whose "place" has been paid for by pinching and saving is there to stay and environment is important.

This family of five must be clothed with another \$250. Scientific analysis of the family makes it equivalent to 4 men, who may spend \$62.50 apiece on clothing. This must mean boots, hats, and underwear in sufficiency; outer clothing of decency and respectability. The mother must appear at the woman's or parent and teacher's club with her appearance in keeping with her hopes and ambitions for the children. It is easy for the public schools to prepare women to carry on nearly all the clothing construction for the family in the home, thus increasing both quantity, and better than that, quality. But it is difficult to preserve this valuable attitude of self-sufficiency in the presence of the pageant of complexity, gorgeousness, and display which the pupils see in the windows of the department stores. If for two years influential shops should elect to present in their windows simplicity and refinement alone, the effect on the girls who are destined to marry the man with a salary of \$1000 or less, or *more*, would be so far-reaching that all of society would feel the effect in a clearer basing of real values in living. Those who ride with wage and salary earners morning and evening, study their faces, hear their casual conversation, and see them rush to their work, feel somewhat of the strain of human effort that provides money for the tawdry, the elaborate, the bizarre, and the useless that seem to attract so easily when displayed in the shop windows.

The problem of warmth and comfort must be faced, and the woman who faces the task of buying the woolen clothes for the household has an opportunity to sit in judgment upon the "fine Italian hand" of the tariff maker. It will be an interesting moment when some considerable numbers of women come together, as they did recently at San Francisco, and spend an equally considerable length of time studying Schedule K. It will be valuable to hear their conclusions as to why one may not for a reasonable sum of money shelter the children from the biting north wind. The writer saw a woman shopping for "all wool" dress goods and after tediously ravelling and pulling she said, "Well, I will take the samples home; I will be back tomorrow." The clerk turned to the next customer with a weary smile. The customer asked, "Do you have many like that?" and he answered, "No," and both, much relieved, turned to the customer's affairs—and yet this was precisely what all women should do. The buyer of the department store did just that, only more thoroughly. The woman is spending the money capital of the business in which she is engaged for life, and if she scorns to be a good buyer or if she is too ignorant to be a good

buyer either the family is cold and hungry or the bread winner must make another spurt to make up for her mistakes.

Food has a ratio which is in inverse proportion to the size of the salary. In a \$500 income it was 60 per cent, in a \$1000 income it is 30 per cent. Here more than anywhere else in the home management the mother needs knowledge, good judgment, and diligence in business. Regarding this family still as the scientific unit of 4 men, there is the sum of \$300 to be spent for food. This represents \$75 apiece for the scientific unit, or \$1.44 a week for each. Discussing this subject not long since with one of the most expert dietitians in the country she declared that it could not be done except with as large a group as twenty, considering the standard of living which should be maintained. But the reply is unanswerable that it is done. We can count the calories and remain in consternation at the results, but meanwhile the children grow and prosper in and out of school. Their eyes are bright, their heads are clear, their spirits are high, they leap and run. Their well-being is maintained, but a scrutiny of the hands of the mother is very revealing as to where the burden falls of keeping the children well, strong, and happy. The children pick up many pennies at trifling tasks which pay for their pleasures and often help pay the grocer. They get an economic precocity which is often revealed by outbursts of almost supernatural wisdom on the part of children in the cookery classes as to where extraordinary grocery bargains may be had in the neighborhood—children of eleven and twelve ask the privilege of buying in class quantities at preserving time, describing all the while with tumultuous eagerness the variation in prices in the range of half a dozen blocks in all directions. Mother has not yet taught them the saving that can be managed by the use of the telephone.

These people, like the other group, cannot buy in large quantities; they must pay the everlasting and crushing tax of the person whose crime is having meager money in his purse. Instead of buying six bars of soap for a quarter they must purchase five bars at five cents each. They must buy potatoes by the small measure, and canned vegetables by the can, with all the extravagance in prices which this implies. The remaining \$200 must be divided among fuel, light, church, insurance, carfare, amusements, school books, the doctor, incidentals, and *savings*. Out of hundreds of budget problems worked out by high school girls in Chicago, only eleven omitted *savings*. If one is over-inclined towards pessimism throw a problem which is real into the hands of a group of high school girls. One hears vast lamentation of their frivolity, of their extravagance, of their lack of purpose—

space is lacking for discussion of this—but this statement is reiterated: With hundreds of high school girls working on a budget of \$1000 per year for a family of five, only eleven omitted *savings*. Their attitude towards insurance has already been indicated. Their conclusions in regard to clothing invariably carried the definite implication that they were to make the clothes themselves, including hats. It is true that the household arts group in the high school is not preponderant, except, of course, in the Girls' Technical High School. In this school the details of the budgets were worked out sufficiently in detail to be a working program for the inexperienced. All schools brought power enough to the question so that from thirteen high schools working independently and freely the final generalizations were those of Engel and Mrs. Richards. The variation was the constantly recurring expectation that the older children were to contribute something to their own support—and all precluded any type of private instruction.

The \$2000 income should maintain a 20 per cent average for rent and clothing (and this average is a veritable average of the three incomes) and practically the same average for food, which gives the unit \$2 a week for food in this family. This again means close and careful buying—\$1200 is thus used for food, clothing and shelter. The operating expenses, such as fuel, lighting, service, if any, and what Mrs. Richards calls "higher life"—meaning books, travel, insurance, and so forth—are included in the remaining \$800. The attitude of the high school girls is that there should be very little hired service in the families with this income. They very perceptibly increased the appropriation for church and charity—also laying great stress on dentistry, as if this were a luxury—as it is to so many. To anyone with serious intention to be valuable to the world in ways great or small a perusal of Miss Addams' *Spirit of Youth in the City Streets* will explain the steady increase in the percentage allowed by the girls in the graded budgets for *amusement*—all were very definite—many describing where good things were to be found for a small sum.

Much stress has been laid on what the girls did since it brought out so much of realization of money values. The discussion of the \$500 income in many cases spread through the whole school and into the neighborhoods and deepened the responsibility of the students towards the necessity of understanding.

As in the beginning so in the closing of this paper, the contention is made that most of the money that is earned is spent by woman and the returns from it will be in direct proportion to her wisdom, her intelligence, and her vision.

PRACTICE FIELDS IN HOUSEHOLD AND INSTITUTIONAL MANAGEMENT.¹

EMMA H. GUNTHER.

Teachers College.

By practice fields reference is made to any opportunity outside the laboratory for practical work in either household or institutional management. The idea is not a new one, for fifty years ago Catherine E. Beecher in her *Educational Reminiscences and Suggestions* made this suggestion:

The domestic department would be provided with model dwelling houses, illustrating proper and tasteful modes of construction, furniture, ornamentation, warming, and ventilation. The family in each dwelling would consist of the principal, associate principal, and ten pupils, and they would do all the family work, except, of the heavier sort. A circulating system would employ every member of the family one or two hours, in such rotation that in a given time each one will have been instructed in and will perform every operation included in family life. When each pupil is thus trained, she will give place to another of the scholars and each would remain a longer or shorter time according to proficiency acquired at school or at home.

This is early proof of the importance attached to the establishing of some field for practical training that approaches in a measure, at least, living conditions; that is, a plan in conjunction with, or a step beyond, present-day laboratory methods, whereby conditions may be met as they really exist.

Laboratories are being perfected to the minutest detail regarding equipment; laboratory methods are embracing every possible practical phase for the administrator, not only of the home but of the various forms of institutions. Nevertheless it is the universal decision—especially regarding those applying for institutional posts—that not less of theory is needed, but infinitely more experience in judicious, sensible, practical application. How is this to be met?

Knowing that many in Home Economics departments were realizing the inadequacy of past methods, and were attempting to supple-

¹ Presented at the Lake Placid Meeting of the Administration Section of the American Home Economics Association, June, 1912.

ment these in various ways, a questionnaire was sent out aiming to collect statements of various plans used in furnishing practice fields for home and institutional management. It was hoped that these might form the basis for suggestions and study. The two main points in the questionnaire were (1) whether a course or courses were offered in household management or institutional management; (2) whether opportunity was offered in these courses or elsewhere—outside the laboratory—for practice field work.

Of 100 letters sent out to universities and colleges, 75 replies were received, of which 39, or about half, answered negatively—that is, in connection with their course in household management or household administration no opportunity for practical work was given outside of the laboratory. No institutional management courses among these were mentioned. Of the remaining half, 29 gave reports embracing these following features outlined in the other points of the questionnaire: (1) Where practice work is given—the college dormitory, lunch room, demonstration apartment, model cottage, etc.; (2) what it includes—marketing, cooking, menu making, serving room work, dining room service, care of rooms, cleaning, buying household supplies, supervision of tasks and workers, laundering, or business administration; (3) when given—concurrently with theoretical work, at the end of the theoretical work, optional, or compulsory; (4) by whom supervised—the instructor, supervisor of practice work, or special director of the dormitory; (5) the form—reports, detailed studies, independent investigations, individual conferences, and discussions in groups or classes; (6) handling of money involved, account keeping; (7) apprentice work—substitutes for one-half day, one month, or more, and (8) whether students are experienced, and whether apprenticeship experience is necessary.

Given briefly, the reports regarding practice fields were as follows:

(1) *Model Practice Cottage*.—Six colleges have this plan, the cottage being occupied by instructors, and students doing certain duties at stated times; or occupied by a few students who live there for a period of time with an instructor, and carry on all the activities of the home. The work of housekeeping is under the supervision of the instructor.

(2) *Demonstration Apartment*.—Ten colleges report the use of such an apartment where to a certain extent home conditions are duplicated. The greatest value obtains from those in which students may live with one or more teachers, otherwise the results are lacking in many respects. Here, as in the model cottage, students learn to take responsibility

in the various phases of housekeeping. The University of Nebraska reports as follows:

The dormitory for the girls in the School of Agriculture closes in April. After they are gone five rooms in the dormitory are fitted up for housekeeping purposes, and groups of three or four girls who are taking the course in household administration come and live in these rooms for a shorter or longer period. They do their own work, make their own menus, and do their own buying and keeping of accounts. They write out a report of the work, including expenditures of time and money. These are discussed in class and individually.

At the State Normal School of Manual Arts and Home Economics, Santa Barbara, Cal., students are advised to do housekeeping in furnished houses and apartments for their practical training.

(3) *College Dormitory*.—Six colleges carry on practical work in dormitories. In one college giving a course in household management, students clean rooms for inspection, while in another they apply in the dormitory knowledge of floor finishes, furniture polishes, utensil cleansers, and the like. To quote from the University of Minnesota: "We have a group of college girls who live in the dormitories of the School of Agriculture, and who take the responsibility of the inspection of rooms and who act as advisers and assistants in the management of the home life of the school pupils."

Seven reported courses in institutional management with practice field work, namely, the University of Chicago, Simmons College, Michigan State Agricultural College, Mechanics Institute of Rochester, N. Y., Pratt Institute, Teachers College of Columbia University, and the University of Wisconsin. Of these, three use college dormitories for practice fields besides additional work in lunch rooms. One plan is this: Students take charge in the serving room, study the dining room service, do large quantity cooking, order, receive, inspect supplies, and make menus. In the housekeeping they take stock of the linen, mark and mend it, and take the linen inventory; inspect cleaning and make time studies; order household supplies and, at stated periods, carry on the business administration. Another writes: "For institutional management, visits are made to various institutions and to tea rooms, and discussions follow of methods and means."

(4) *Lunch Rooms*.—Eight colleges make use of these for their field work. In the University of Chicago students serve from 500 to 600 people each day at their club. To quote from another: "Two of our students run a cafeteria five days in the week, serving from 50 to 100 people, and other students have practice under them as helpers, cooks,

cashier, and serving at the counter." Others report similar work. Students in one college serve 10-cent lunches to 20 faculty members, and also serve meals in the homes of the faculty. Another plan is that of students taking entire charge of banquets of from 70 to 500 plates. Numbers of cases might be cited where students have practice in furnishing food for special functions. One writes: "Recently our engineers built a road on the campus and my juniors furnished dinner for 150 working men." From another (Bradley Polytechnic Institute):

We give all our senior students practice in cooking in the school lunch room kitchen where they also observe the methods of carrying on the work there and concerning which a number of lectures are given by the manager of the lunch room. This is done for the benefit of those who go out as teachers where the oversight of a lunch room may be required. In the majority of cases reported, the practical work is given concurrently with the theoretical, but a few give it at the end of the classes in theory. Almost all make the practice compulsory.

To summarize: Regarding supervision, it is in most colleges in charge of the instructor of the course, who may at the same time be director of the dormitory. In two instances, a supervisor of practice work is in charge.

Reports, individual conferences, and discussions in groups were the plans followed by the majority. About one-third used also the method of independent investigations. As regards handling of money in actual buying, there are but a few that noted experience in this line. To quote: "Food purchases for a family of six, and purchase of fuel for the kitchen and dining room. Accounts of same." "Cash allowance for a series of meals. Itemized bills for a series of meals and totals." Another writes: "Girls take responsibility of actual buying. Lunch accounts are kept." Also, "\$4 per week is given each student during the time of the course. With this she must meet all expenses of food for four people for five meals; namely, a five-course formal dinner, a three-course informal dinner, and three luncheons. The ice, laundry, and fuel bills are not included in the amount given the student but are carefully figured by her and paid by the department." To these questions concerning money and accounts, the greater number answered in the negative.

The answers to the inquiry as to methods of testing students' ability to meet responsibility by having them act as substitutes for a period of time were as follows: Four used the plan of students spending one-half day as substitutes in charge of a department; in one college they spend a day; in two they devote one week; in another they give

one month; in one they demand that the students spend three months. Several replied: "Have not come to any decision on this point as yet." All replies save two were "No" to the question, "Are the majority of students in institutional management those having had previous experience and responsibility?" Almost every answer was in the affirmative as to whether some experience of the apprenticeship type is necessary in preparing women for administrative work.

To see the trend of thought regarding proposed plans for the coming year several might be quoted: "We do not as yet offer a course leading to administrative positions, but are thinking of introducing such a course when our new dormitory is completed." "Plans for new building to be used in 1913 contain institutional kitchen, large dining room, and an apartment. It is expected that practice work will be given in household management and institutional cookery." (University of Illinois). "Our department has been so hampered for lack of space and opportunity for institutional work that we can not make a good report. We are to have our new building next year, when I hope we shall be able to report something." (Cornell University.) Another (Middlebury College): "We are just organizing for next year a demonstration apartment in our college dormitory." "A future hope is to have a house equipped for the practical 'try out' of class room teaching."

From the educational department of the Y.W.C.A. in St. Louis, Mo., comes this: "We have just moved into our new half-million dollar property which has a very complete and up-to-date equipment for domestic science, including a cafeteria which would give us a splendid chance to introduce training in institutional management. We have already been discussing plans for such a course of study."

Added to this we find statements from those now carrying on some practice field work to this effect: "Quarters inadequate at present. New building next year will make it possible to do more extensive work." "More time next year to practice work." "We do comparatively little with household management on account of present cramped quarters—we have rooms and equipment for a full and thorough course planned in the prospective new building." "Our work in house practice was introduced this past year, so it is only in the experimental stage. We hope to enlarge it next year."

It is interesting to glance at a few of the housekeeping schools in Europe, noting especially what they offer in the way of a practice field. Barring classes in institutional cookery given in the National

Cooking School, Buckingham Palace Road, London, there seems to be little offered in England for institutional training. In National Societies Training College, West Hampstead, N. W., London, the students use rooms in the dormitory for practical work. The house used in connection with the Clapham High School, Domestic Science Department, accommodates six students with the lady directress. The girls take turns in managing the home, supervising the household, buying, keeping accounts, playing hostess, etc. At the Battersea Polytechnic, Park Road, the girls cater for about 100 people—besides doing much practical work in housekeeping. In Colonial Training College, Stoke Prior, Bromsgrove, where students receive practical training for work in the colonies, "the pupils do all the work of the home, taking it in turns, from scrubbing floors and cleaning grates to preparing meals."

In the Edinburgh School of Domestic Economy, there is a model house of three rooms where the practical work in housekeeping is carried on. The students take turns in being responsible for the household routine, house linen, marketing, and house bookkeeping, besides having duties in the kitchen, scullery, store room, and larder. A similar plan is that of the Household Arts School at Berne, Switzerland, where groups of girls carry on the work of the house, besides offering rooms and board to three others who pay for this privilege. Not unlike this are those Household Arts Schools at Ralligen and at Worb, Switzerland, where housekeeping opportunities are offered.

Germany provides many such housekeeping practice fields, as does Denmark, the one at Aarhus having the plan of 6 girls out of the 24 taking turns at keeping house. One is housekeeper, doing the marketing; one does chamber work, another laundry work, another baking, while all assist in the cooking.

What are our conclusions with this glimpse of the plan followed in a few housekeeping schools of Europe, and from the tabulations of the questionnaire from which we know to a certain extent what is incorporated in the idea of practice fields, at least for household administrations? Are we ready to champion the cause of practice fields? Does this method seem to be the ultimate step beyond our now well-established laboratory method? For the method employed, whether cottage, dormitory, or lunch room, it would seem essential that the field that is used should most nearly approach living conditions to be met by the students later—not merely the routine of living, but the "unexpecteds" that are always arising and which demand a judicious and wise executive. Whatever the plan—be it under conditions ideal or

using the place that is available now—actual power is gained by the doing. Observation has its place and a valuable one—but every opportunity given a student to fit into the actual day's work—especially for institutional workers—is a valuable asset to her. Hence students are eager to do summer work in inns, tea rooms, small hotels, etc., taking positions of responsibility wherever possible. The time that this work is given—whether with the theoretical or at the end—seems to be a matter that is governed by the conditions.

Numbers are small in most cases as yet, so that individual conferences are possible. They are especially necessary where students are experienced and are working at special problems. Can the methods employed with practice teachers in normal schools or with nurses in training schools be used in this kind of practice work—that is, by individual conferences first, followed by observation periods—then while the student is doing the work, by supervision to a certain extent? Later, the student presents a written report in outline form, or drawings, enough to help organize the material and fix it, and a conference is held regarding this and other reports for comparisons. The broad features and general deductions may be brought up in class later.

The plan of the apprenticeship system—as followed to a certain extent by pupil dietitians—is now under discussion for those to be college dormitory assistants, lunch room managers, housekeepers in hospitals, etc. Is it possible to enlarge along this line, to place out to a much greater extent for practice those not competent to take positions because lacking in experience? How can we best prepare our students for the work of an institution—where such emphatically important points are at issue—that they have sufficient practice to know the best times for marketing, and to become keen in the recognizing of schemes for frauds in all phases of food purchases; that they have sufficient practice to know what the saving in a large institution of a fraction of a cent per person means; to have sufficient chance to secure the skill that is attainable through practice in making suitable and balanced menus; to have practice enough in trying out the working of labor-savers to be convinced of their usefulness or uselessness; and to have sufficient practice to know what supervision means of numbers of people in service, and to appreciate the significance of tact, sympathy, poise, and self-confidence?

BIBLIOGRAPHY OF HOME ECONOMICS LITERATURE.

MARY D. S. ROSE.

SEPTEMBER 1, 1912.

I. FOOD AND NUTRITION.

Principles of Jelly Making. N. E. Goldwaite. *Cornell Reading Courses*, 1912, vol. 1, no. 15, pp. 241-254.

Phosphorus in Indian Foodstuffs. D. Hooper. *Jour. Soc. Chem. Ind.*, vol. 31, p. 88; *Chem. Abs.*, June 20, p. 1638.

The Baking Qualities of Flour as Influenced by Certain Chemical Substances, Milling By-products, and Germination of the Wheat. J. T. Willard and C. O. Swanson. *Trans. Kans. Acad. Sci.*, vols. 23-24, pp. 201-207; *Chem. Abs.*, June 10, p. 1475.

Further Observation on the Soy Bean. J. Ruhräh. *Arch. Pediatrics*, vol. 28, p. 841. As food for infants and diabetics.

Vinegar and Vinegar Laws. J. O. Jordan. *Mo. Bull. Boston Board of Health*, 1, 1912, no. 3.

Feeding Experiments with Fat-free Food Mixtures. T. B. Osborne and L. B. Mendel. *Jour. Biol. Chem.*, July, 1912, pp. 81-89.

Feeding Experiments Illustrating the Importance of Accessory Factors in Normal Diets. F. G. Hopkins. *Jour. Physiol.*, July, pp. 425-460.

Protein Metabolism from the Standpoint of Blood and Tissue Analysis. Third Paper. Otto Folin and W. Denis. *Jour. Biol. Chem.*, July, 1912, pp. 141-162. Urea Formation.

Nature of the Repair Processes of Protein Metabolism. E. V. McCollum. *Wisconsin Agr. Expt. Sta. Research Bull.* 21, February, 1912.

Some Experiments on the Relative Digestibility of White and Whole Meal Breads. Newman, Robinson, Halman, and Neville. *Jour. of Hygiene*, June, pp. 119-143.

Effects of Coffee Drinking upon Children. Charles Keen Taylor. *Psychological Clinic*, April 15, pp. 56-58.

The Influence of Caffeine on the Circulatory and Muscular Systems. H. C. Wood. *Therap. Gaz.*, January, pp. 6-12.

The Influence of Caffeine on Mental and Motor Efficiency. H. L. Hollingworth. *Therap. Gaz.*, January, pp. 1-5.

The Effect of Caffeine on Nitrogenous Excretion and Partition. C. B. Farr and W. H. Welker. *Am. Jour. Med. Sc.*, vol. 43, pp. 411-415.

A Nutrition Investigation on the Insoluble Carbohydrates or Marc of the Apple. E. C. Schneider. *Am. Jour. Physiol.*, June, pp. 258-270.

The Influence on the Respiratory Exchange of Varying Amounts of Carbohydrate in the Diet. Benedict and Higgins. *Am. Jour. Physiol.*, June, pp. 217-232.

The Influence upon Metabolism of Non-oxidizable Material in the Intestinal Tract. Benedict and Emmes. *Am. Jour. Physiol.*, June, pp. 197-216.

Diet in Cardiovascular Diseases. E. E. Cornwall. *N. Y. Med. Jour.*, June 22.

Diarrhea of Gastric Origin, Diagnosis and Treatment. Douglas Vander Hoof. *Am. Jour. Med. Sc.*, August, pp. 170-189.

The Functions of the Large Intestine. W. B. Cannon. *Jour. Am. Med. Assn.*, July 6, 1912, pp. 1-4.

The Antiseptic and Bactericidal Properties of Egg White. L. F. Rettger and J. A. Sperry. *Jour. Med. Research*, vol. 26, pp. 55-64.

The Balance of Acid-forming and Base-forming Elements in Foods and its Relation to Ammonia Metabolism. H. C. Sherman and A. O. Gettler. *Jour. Biol. Chem.*, vol. xi, no. 4, 1912.

The Relation of the Organic Phosphorus Content of Various Diets to Diseases of Nutrition, Particularly Beriberi, I. G. C. E. Simpson and E. S. Edie. *Am. Trop. Med. and Parasit.*, vol. 5, pp. 313-345; *Chem. Abs.*, June 10, p. 1458.

A Dietary Study in a Children's Hospital. Mary S. Rose and Harriet C. Jacobson. *Teachers College Technical Education Bulletin*, no. 13, Columbia University.

Some Observations on Catharsis. E. P. Quain. *Jour. Am. Med. Assn.*, July 6, 1912, pp. 27-30. Good bibliography and popular review of recent literature.

Albumin Milk as Contrasted with Other Milk Mixtures in the Treatment of the Diarrheas of Children. *Therapeutic Gazette*, June 15, pp. 410-412.

The Ethics of Gastronomy and Dietetics. Janet M. Hill. *Boston Cooking School Mag.*, April, pp. 435-437.

Changing the Winter Diet for a Summer One. Jessamine Chapman. *Boston Cooking School Mag.*, June-July, pp. 50-51.

Fundamental Principles in Infant Feeding. Chas. G. Kirby. *Monthly Bull.*, N. Y. State Dept. of Health, pp. 128-130, May, 1912. The whole number devoted to infant mortality.

2. HYGIENE AND SANITATION.

The Preservation of Food in the Home. Flora Rose. *Cornell Reading Course for the Farm Home*, June, 1912, vol. i, no. 17.

Cold Storage Problems. P. G. Heineman. *Pop. Sc. Mo.*, August, pp. 153-162.

The Conservation of Food Products by Refrigeration. P. H. Bryce. *Am. Jour. Pub. Health*, May, pp. 325-330.

The Rôle of the House Fly and Certain Other Insects in the Spread of Human Diseases. W. E. Britton. *Pop. Sc. Mo.*, July, pp. 19-35.

Most Recent Investigations on the Determination, Preservative Action, and Admissibility of the Use of Benzoic Acid. K. B. Lehman. *Science*, April 12, pp. 577-585.

The Bacterial Contamination of Bread. Katharine Howell. *Am. Jour. Pub. Health*, 1912, vol. ii, p. 321. A very timely contribution.

The Sterilization of Milk Bottles with Calcium Hypochlorite. H. A. Whittaker and B. M. Mohler. *Am. Jour. Pub. Health*, vol. 2, pp. 282-287.

The Handling, Transportation, and Storage of Perishable Foodstuffs, I and II. J. S. Hepburn. *Jour. Frank. Inst.*, vol. 172, pp. 173-193 (illus.).

Cheap Confectionery. Chas. H. La Wall. *Pa. Dept. of Agr., Dairy and Food Div.*, Bull. 216.

Further Observations on the Chemistry of Disinfectants. Wilhelm Dreyfus. *Am. Jour. Pub. Health*, 1912, pp. 163-167.

The Prevalence of Dental Caries in Modern Civilized Communities. Arthur S. Underwood. *Nineteenth Century*, July, pp. 182-197.

Municipal Inspection of Food Supplies. J. O. Jordan. *Am. Jour. Pub. Health*, February, 1912.

Some Legal and Practical Aspects of "Bottled Milk" Regulation. J. O. Jordan, *Am. Jour. Pub. Health*, February, 1912.

Scientific Management in the Home. John B. Guernsey. *Outlook*, April 13, pp. 821-825.

Standards for Home Management in Relation to Food Problems. C. F. Langworthy. *Home Progress*, 2 (1912), No. 1, pp. 8-18.

Vegetables—Their Food Value and Preparation. Elizabeth Jefferson and Mary Edmonds. Agricultural College (Ohio) Extension Bulletin 7 (1912), No. 10, pp. 16.

On Cooked Foods. Katharine I. Williams. *Knowledge*, 35 (1912), [n. ser. vol. 9], pp. 381-385.

3. EDUCATION AND SOCIAL WORK.

The Ragged Edge. Martha Bensley Bruère. *Outlook*, April 20, pp. 859-863.

How Shall we Learn to Keep House? Martha Bensley Bruère, *Outlook*, July 6.

Administration of School Luncheons. Alice C. Boughton, *Psychological Clinic*, April 15, pp. 44-51.

The School Feeding Movement. Louise Stevens Bryant. *Psychological Clinic*, April 15, pp. 29-43.

The Training of the School Dietitian. Mary Swartz Rose. *Psychological Clinic*, April 15, pp. 52-55.

The Conference on Diet in Public Secondary and Private Schools. Charles E. Hecht, Secretary National Food Reform Association. *The Child*, July, pp. 867-68. A brief preliminary report.

Infant Mortality and Milk Stations. Special Report, New York Milk Committee, 1912.

Campaigning for Babies' Lives. Constance D. Leupp. *McClure's Mag.*, August, pp. 361-373.

Domestic Science in Rural Schools. Mary L. Bull. *U. of Minnesota, Dept. of Agr.*, vol. 2, no. 7 (Extension Bull. No. 19). A brief manual for the use of teachers.

They Who Keep Us Clean. Miriam Finn Scott. *Outlook*, April 27, pp. 919-924.

Making Weights and Measures Fair. Richard Benton. *Tech. World Mag.*, August, pp. 690-693.

ADMINISTRATION SECTION MEETING, LAKE PLACID, NEW YORK.

Upon invitation of the Lake Placid Club, the Administration Section of the American Home Economics Association held its third annual meeting at the Lake Placid Club, Essex County, New York, from June 22 to 26, 1912. The program as presented at the meeting was as follows:

PROGRAM.

Saturday, June 22, 9.30 a.m.

Address of welcome, by Melvil Dewey, president Lake Placid Club.

Committee on Administration, Mrs. Dewey, honorary chairman.

The Problem of an Agricultural College Dining Hall for 500, Mary Urie Watson, MacDonald Institute, Guelph, Ontario.

Data Regarding the Kind and Cost of Food Served at a Club for Men, Dr.

C. F. Langworthy, United States Department of Agriculture, Washington, D. C.

Directions for Kitchen and Dining-room Employees, Mrs. Dewey.

Saturday, 8.00 p.m.

Administration in the Private Home, Flora Rose, Cornell University, chairman.

The Relation of Household Administration to Public Utilities, Martha Bensley Bruère, New York City.

Facilities for Marketing and Cost of Living, E. E. Pratt, New York Food Investigating Commission.

Monday, June 24, 9.30 a.m.

Committee on Laundries, S. Maria Elliott, Simmons College, chairman.

Report on Organization and Administration of Institution Laundries.

Regulation and Inspection of Commercial Laundries, Helen Woodford Pratt, Consumers' League, New York City. William C. Rogers, deputy state commissioner of labor, Albany, N. Y.

Monday, 8.00 p.m.

Efficiency in Administration, Emma H. Gunther, chairman.

Principles of Scientific Management Applied to the Household and Institution, Frank B. Gilbreth, consulting engineer, New York City.

Discussion: Wanted, A Test for "Man Power," introduced by Mrs. Dewey.

Tuesday, June 25, 9.30 a.m.

Committee on Education, Sarah Louise Arnold, dean of Simmons College, chairman.

Report on Instruction in Household and Institution Administration, Miss Arnold.

Practice Fields of Training for Household and Institution Management, Emma H. Gunther, School of Practical Arts, Teachers College, New York City.

Tuesday, 8.00 p.m.

Committee on School Lunches, Louise Stevens Bryant, chairman, University of Pennsylvania, Philadelphia.

General Development and Present Status of School Feeding Movement, Mrs. Bryant.

School Lunches and Medical Inspection, Ira S. Wile, M.D., New York City.

Elementary School Lunches in Smaller Cities, Alice M. Hotchkin, Director School Lunches, Rochester, N. Y.

Wednesday, June 26, 9.30 a.m.

Committee on Institutional Accounts and Records, William Morse Cole, Harvard University, chairman.

Report of Committee on Buying Supplies, Henry C. Wright, Russell Sage Foundation, chairman.

Food per Capita, Melvil Dewey, Lake Placid Club.

Wednesday, 8.00 p.m.

Committee on Dietaries, Florence Corbett, Whittier Hall, Teachers College, New York City, chairman.

Dietary Criticism and Food Surveys, Miss Corbett.

The Hospital Diet Kitchen, M. C. Little, Polyclinic Hospital, New York City.

The Coöperation of Dietitian and Physician, E. Grace McCullough, Boston, Mass.

The Housekeeper Dietitian in the Hospital Field, Miss Lindsley, Woman's Hospital, New York City.

The first session was called to order by Miss Van Rensselaer, secretary-treasurer of the section, in the absence of Miss Nutting, chairman. Mr. Dewey, president of the Lake Placid Club made an address of welcome, in which he called attention to the fact that the American Home Economics Association had its beginnings at Lake Placid, and that, although the movement had made great strides in the past thirteen years it was still in its infancy. At the close of Mr. Dewey's talk, Miss Van Rensselaer reminded those present that the department of Institutional Management had been inaugurated

by Mr. and Mrs. Dewey, and that many other enterprises that have since become valuable agencies for public good were started at Lake Placid.

All of the meetings were full of interest, and the members present were most enthusiastic over the work of the section.

At the closing session, resolutions were passed thanking Mr. and Mrs. Dewey for their hospitality and for the many kindnesses extended to the members.

Some of the papers presented will be found in this issue.

A detailed account of the meeting, with other papers presented and the discussions which followed, will appear in a subsequent issue of the JOURNAL.

MEMBERS OF THE ADMINISTRATION SECTION PRESENT AT THE LAKE PLACID MEETING.

Balderston, L. Ray, Instructor of Laundering, Teachers College, New York City.

Barker, Mrs., A.B., Housekeeper, 630 Huron Street, Toronto, Canada.

Bruère, Martha Bensley, Writer, 39½ Washington Square, New York City.

Bruère, Robert W., Writer on social economics, *Harpers Monthly*, etc., 39½ Washington Square, New York City.

Bryant, Louise Stevens, In charge Social Service Department, Member of School Lunch Committee of Home Economics Association of Philadelphia, University of Pennsylvania, Philadelphia.

Cary, Mrs. C. McK., Superintendent Domestic Affairs, Wells College, Aurora, N. Y.

Chesley, William, Manager Dining Hall, Massachusetts Agricultural College, Amherst, Mass.

Child, Ruth K., Confidential Inspector for the Fiscal Supervisor of State Charities, 477 Dana Avenue, Albany, N. Y.

Cole, William Morse, Professor of Accounting, Harvard University, 55 Brewster Street, Cambridge, Mass.

Cooper, Lenna F., Dietitian and Director of Domestic Science, Battle Creek Sanitarium, Battle Creek, Michigan.

Corbett, Florence R., Instructor, Teachers College, Director Whittier Hall Dining Rooms, 1230 Amsterdam Avenue, New York City.

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GRADUATE SCHOOL OF HOME ECONOMICS.

The Fourth Graduate School of Home Economics was held at the Michigan Agricultural College, East Lansing, Michigan, from July 1 to 26, at the same time and place as the Graduate School of Agriculture. As in former years arrangements were made so that students in either school could attend lectures in both schools. The course this year was extended from two to four weeks, in order that laboratory courses in food microbiology and chemistry could be given.

The attendance was much larger than ever before, students registering from thirteen states. It is interesting to note the various lines that the members were following, teachers in colleges, normal, high, and grade schools, supervisors of Home Economics in schools, dietitians, and housekeepers, by far the greater number being teachers.

The program of the school, and lectures given in the Graduate School of Agriculture which were of especial interest to the Home Economics student, are given below. In addition to the regular program, there were several social events which served to bring the students of the two schools together, an excursion to a mint farm, an inspection trip to a city milk factory, etc. The committee in charge of the school consisted of Mrs. Alice P. Norton, chairman, Miss Edna D. Day, Miss Abby L. Marlatt, Miss Martha Van Rensselaer, Miss Maude Gilchrist, Miss Agnes Hunt, Dr. C. F. Langworthy, and Dr. L. B. Mendel.

PROGRAM.

Monday, July 1.

- 8.00-9.00 a.m.¹ Dr. H. C. Sherman, professor of food chemistry, Columbia University: Functions of Food and of the Digestive Ferments.
- 9.30-11.30 a.m. Dr. J. Merritt Matthews, consulting chemist to the textile industries, New York City: Fundamental Properties of Textiles.
- 1.00-3.00 p.m. Conference, led by Mrs. Alice P. Norton, University of Chicago: General Scope of the Work.
- 2.00-3.00 p.m.¹ Dr. T. N. Carver, professor of political economy, Harvard University: The Law of Limiting Factors and Its Bearing upon the Distribution of Wealth and Population as Between Country and City.

¹ Given in the Graduate School of Agriculture.

- 2.00-3.00 p.m.¹ Dr. H. N. Ogden, professor of sanitary engineering, Cornell University: Methods of Estimating the Value of Sanitation.
- 1.00-3.00 p.m. Bacteriology Laboratory, Dr. Otto Rahn, assistant professor of bacteriology, Michigan Agricultural College. Chemistry Laboratory, Prof. Frank S. Kedzie, Michigan Agricultural College.
- 3.00-5.00 p.m.¹ Dr. Sherman: Seminar.

Tuesday, July 2.

- 8.00-9.00 a.m.¹ Dr. Sherman: Protease and Lipase.
- 9.30-11.30 a.m. Dr. Matthews: Textile Fibers, Wool and Hair Fibers, Related Fibers.
- 1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
- 2.00-3.00 p.m.¹ Dr. Carver: The Economizing of Human Energy in Rural as Compared with Urban Industries.
- 2.00-3.00 p.m.¹ Dr. Ogden: Pure Water and the Results of Pollution.
- 3.00-5.00 p.m. Dr. N. E. Goldthwaite, assistant professor of household science, University of Illinois: The Principles of Jelly Making.

Wednesday, July 3.

- 8.00-9.00 a.m.¹ Dr. Sherman: Sucrase and Amylase.
- 9.30-11.30 a.m. Dr. Matthews: Silk: Microscopical and Physical Properties. Chemical Nature and Property of Silk.
- 1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
- 2.00-3.00 p.m.¹ Dr. Carver: The Economizing of Land.
- 2.00-3.00 p.m.¹ Dr. Ogden: The Purification of Water.
- 3.00-5.00 p.m. Dr. Sherman: Seminar-Dietetics.
- 8.00-10.00 p.m. Public Opening: Dr. Armsby presiding. President Snyder, Dean Shaw, Dr. True, Dean Gilchrist.

Thursday, July 4.

- 8.00-9.00 a.m.¹ Dr. Sherman: Utilization of Specific Food Materials (1).
- 9.30-11.30 a.m. Dr. Matthews: Vegetable Fibers: Physical Structures, Chemical Constitution, Chemical Reactions.
- 1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
- 2.00-3.00 p.m.¹ Dr. Carver: Do We Want a Larger Product per Acre, or a Larger Product per Man?
- 2.00-3.00 p.m.¹ Dr. Ogden: Sewerage and Sewage Disposal by Dilution.
- 3.00-5.00 p.m. Dr. Matthews: Seminar-Textiles.

Friday, July 5.

- 8.00-9.00 a.m.¹ Dr. Sherman: Utilization of Specific Food Materials (2).
- 9.30-11.30 a.m. Dr. Matthews: Chemical Reactions (continued): Dye Stuffs. Conditions of Mercerizing. Properties of Mercerized Cotton.

¹ Given in the Graduate School of Agriculture.

- 1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
2.00-3.00 p.m.¹ Dr. Carver: The Rural Population.
2.00-3.00 p.m.¹ Dr. Ogden: Sewage Purification.
3.00-5.00 p.m.¹ Dr. Carver: Seminar.

Saturday, July 6.

- 9.00-11.00 a.m.¹ Conference, College Instruction in Agriculture, led by Dean T. F. Hunt, Pennsylvania State College.

Monday, July 8.

- 8.00-9.00 a.m.¹ Dr. L. B. Mendel, professor of physiological chemistry, Yale University: The Biochemistry of Selected Tissues.
9.30-10.30 a.m. Conference: Aims in Domestic Science Teaching, led by Miss Ruth Wardall, Ohio State University.
11.00-12.00 a.m.¹ Dr. C. E. Marshall, professor of bacteriology and hygiene, Michigan Agricultural College: Biology of the Cell. The General Nature of the Cell and its Metabolism.
1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
2.00-3.00 p.m.¹ Mr. C. J. Galpin, lecturer on country life, Department of Agricultural Economics, University of Wisconsin: What is a Rural Community? How to Study it by Means of a Survey.
3.00-5.00 p.m. Dr. Mendel: Seminar.

Tuesday, July 9.

- 8.00-9.00 a.m.¹ Dr. Mendel: Enzymes and Fermentations.
9.00-11.00 a.m. Miss Agnes Hunt, professor of domestic science, Michigan Agricultural College: Effects of Heat on Protein. Demonstration.
11.00-12.00 a.m.¹ Dr. W. G. Giltner, research assistant in bacteriology, Michigan Agricultural College: Biology of the Cell. The Toxins of the Cell.
1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
2.00-3.00 p.m.¹ Mr. Galpin: Community Festivals as Agencies of Social Contact.

Wednesday, July 10.

- 8.00-9.00 a.m.¹ Dr. Mendel: Food Transportation within the Organism.
9.00-11.00 a.m. Prof. Hunt: Effects of Heat on Fats. Demonstration.
11.00-12.00 a.m.¹ Dr. Otto Rahn, assistant professor of bacteriology, Michigan Agricultural College: Biology of the Cell. Energy of the Cell.
1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
2.00-3.00 p.m.¹ Dr. W. O. Hedrick, professor of history and economics, Michigan Agricultural College: Human Ecology—Environmental Conditions.
8.00-10.00 p.m.¹ Conference, led by Dr. J. M. Coulter.

¹ Given in the Graduate School of Agriculture.

Thursday, July 11.

- 8.00-9.00 a.m.¹ Dr. Mendel: Newer Researches on Nutrition in Growth and Maintenance.
9.00-11.00 a.m. Prof. Hunt: Effects of Heat on Carbohydrates. Demonstration.
11.00-12.00 a.m.¹ Mr. C. W. Brown, research assistant in bacteriology, Michigan Agricultural College: Biology of the Cell. Enzymes of the Cell.
1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
2.00-3.00 p.m. Dr. Hedrick: Human Responses.
3.00-5.00 p.m. Dr. Mendel: Seminar. Teaching of Dietetics and Hygiene in Dress.

Friday, July 12.

- 8.00-9.00 a.m.¹ Dr. Mendel: Synthesis in Nutrition.
9.00-10.00 a.m. Dr. Sophonisba P. Breckinridge, assistant professor of social economy, University of Chicago: The Spending of Money.
10.00-11.00 a.m. Dr. Breckinridge: Economic Coöperation of Women.
11.00-12.00 a.m.¹ Dr. F. H. Van Suchtelen, research assistant in Bacteriology, Michigan Agricultural College: Biology of the Cell. The Products of the Cell.
1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
2.00-3.00 p.m.¹ Dr. Hedrick: The New Geography.
3.00-4.00 p.m. Dr. Breckinridge: Woman's Responsibility for the Condition of the Wage Earner.
4.00-5.00 p.m. Dr. Breckinridge: Standardization of the Care of Children.
8.00-10.00 p.m.¹ Conference: Agricultural Research, led by Dean H. L. Russell.

Monday, July 15.

- 8.00-9.00 a.m.¹ Dr. Oscar Riddle, research associate, Carnegie Institute, Chicago: Embryology and Evolution. The Two Aspects of Development.
9.30-10.30 a.m. Conference: Teaching of Textiles, led by Mrs. L. L. Peppard, Michigan Agricultural College.
1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
3.00-5.00 p.m.¹ Dr. Riddle: Seminar.

Tuesday, July 16.

- 8.00-9.00 a.m.¹ Dr. Riddle: The Elementary Phenomena of Development.
9.30-10.30 a.m. Miss Minna C. Denton, assistant professor of bacteriology and sanitation, Lewis Institute, Chicago: Newer Aspects of Sanitation. Ventilation.
1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.

¹ Given in the Graduate School of Agriculture.

Wednesday, July 17.

- 8.00-9.00 a.m.¹ Dr. Riddle: The Physiological Basis of Sex.
9.30-10.00 a.m. Prof. Denton: Relation of the Consumer to the Improvement of the Sanitary Quality of the Milk Supply.
1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
8.00-10.00 p.m. Conference with the Graduate School of Agriculture, Extension Work, led by Mr. Tuck of Cornell University.

Thursday, July 18.

- 8.00-9.00 a.m.¹ Dr. Riddle: The Physiology of the Development of Color Characters (1).
9.30-10.30 a.m. Prof. Denton: Some Points in Sanitation.
11.00-12.00 a.m. Dr. C. F. Langworthy, Chief of Nutrition Investigations, U. S. Department of Agriculture: Respiration Calorimeters.
1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
3.00-5.00 p.m. Conference: Extension Work, led by Miss L. A. Harkins, Montana Agricultural College.

Friday, July 19.

- 8.00-9.00 a.m.¹ Dr. Riddle: The Physiology of the Development of Color Characters (2).
9.30-10.30 a.m. Prof. Denton: Teaching of Sex Hygiene.
11.00-12.00 a.m. Dr. Langworthy: Evolution of Table Manners and Customs.
1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
4.00-5.00 p.m. Mr. Michael Carmichael Carr, Theory and Practice of Art, University of Missouri: The Meaning of Dress.
8.00-10.00 p.m. Conference with the Graduate School of Agriculture, Agricultural Extension, led by Prof. G. I. Christie.

Saturday, July 20.

- 8.00-9.30 a.m. Mr. Carr: The Costume of the Future.

Monday, July 22.

- 8.00-9.00 a.m.¹ Dr. E. B. Forbes, chief of nutrition, Ohio Experiment Station: The Mineral Elements in Animal Nutrition. The Mineral Elements in Relation to General Physiology.
9.30-10.30 a.m.¹ Mr. R. M. Washburn, associate professor of dairy husbandry, University of Minnesota: Nutritive Value of Various Milks. Survey of the Field. Plan of the Experiments.
11.00-12.00 a.m. Conference: Courses of Instruction, led by Mrs. Alice P. Norton, University of Chicago.
1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
3.00-5.00 p.m. Dr. Forbes: Seminar.

¹ Given in the Graduate School of Agriculture.

Tuesday, July 23.

- 8.00-9.00 a.m.¹ Dr. Forbes: The Balance of Basic and Acid Compounds in Nutrition.
9.30-10.30 a.m.¹ Prof. Washburn: Fat vs. Lean Milk. A Study of Correctives.
11.00-12.00 a.m. Miss Grace Smith, Technical High School, Springfield, Mass.: Industrial History as Related to the Teaching of Textiles.
1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
3.00-5.00 p.m.¹ Dr. Forbes: Seminar.
4.00-5.00 p.m. Dr. Edna D. Day, professor of Home Economics, University of Kansas: The Effect of Cooking on Vegetable Foods. Starch.

Wednesday, July 24.

- 8.00-9.00 a.m.¹ Dr. Forbes: Individual Elements and Their Compounds in Metabolism.
9.30-10.30 a.m.¹ Prof. Washburn: Holstein vs. Jersey Milk. Homogenized vs. Normal Milk.
11.00-12.00 a.m. Miss Smith: Early History of Textiles. Linen and Wool.
1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
4.00-5.00 p.m. Prof. Agnes Hunt: Investigation for the Undergraduate.
8.00-10.00 p.m.¹ Conference: The Practicum Side of Secondary Instruction in Agriculture, led by Prof. W. H. French, Michigan State Agricultural College.

Thursday, July 25.

- 8.00-9.00 a.m.¹ Dr. Forbes: Practical Considerations.
9.30-10.30 a.m.¹ Prof. Washburn: Increasing Bone Strength. Conclusions and Commercial Considerations.
11.00-12.00 a.m. Miss Smith: The Industrial Revolution.
1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
4.00-5.00 p.m. Dr. Day: The Effect of Cooking on Vegetables (cont.). Cellulose.
7.30-9.00 p.m.¹ Conference: Collegiate Instruction in Agriculture, led by Dr. True.

Friday, July 26.

- 8.00-9.00 a.m.¹ Dr. Forbes: Methods of Investigation and Interpretation of Results.
9.30-10.30 a.m.¹ Prof. Washburn: The Influence of Fat, Sugar, and Gelatine in Ice Cream.
11.00-12.00 a.m. Miss Smith: Cotton.
1.00-3.00 p.m. Bacteriology Laboratory. Chemistry Laboratory.
3.00-5.00 p.m.¹ Prof. Washburn: Seminar.

¹ Given in the Graduate School of Agriculture.

NATIONAL EDUCATION ASSOCIATION.

At the fiftieth annual convention of the National Education Association, held in Chicago, July 6 to 12, the American Home Economics Association held one session, under the Department of Manual Training and Art, in the Fullerton Hall of the Art Institute. Miss Isabel Bevier of the University of Illinois, president of the American Home Economics Association, presided.

The topic of the afternoon was The Economics of the Household, with the following papers: Distribution of Income, \$500, \$1000, and \$2000 per Year for the Family of Five, Mary S. Snow, supervisor of household arts in the public schools of Chicago; Dietetic Standards for these Various Households, Miss Bevier; and Obligations of Society toward the \$500 Income, Mrs. Raymond Robins, head of the National Women's Trade Union League of Chicago.

A discussion of the papers was given by Miss Carrie H. Lyon, instructor in cooking and housekeeping, Margaret Morrison Carnegie School for Women, Pittsburgh, and Mrs Alice P. Norton, assistant professor of household administration, University of Chicago.

That the meeting was of great interest to those in attendance at the National Education Association was evinced by the crowded attendance, filling Fullerton Hall long before the meeting was called to order, and by the several hundreds who were turned away, also by the enthusiasm displayed at the conclusion of each paper.

Other papers that were of interest to those interested in Home Economics were as follows:

Topic: Rural Life Conditions and Rural Education.

1. A Social and Educational Survey of the Rural Community. Warren H. Wilson, director of missions, New York, N. Y.
2. What is Being Done to Meet the Problem:
 - (a) By the Schools of Guilford County, North Carolina. T. R. Foust, county superintendent, Greensboro, N. C.
 - (b) By the State of Oregon. L. R. Alderman, state superintendent of public instruction, Salem, Oregon.
 - (c) In North Dakota. James H. Worst, president of State Agricultural College and director of Experiment Station, N. Dak.
3. The Humanity of Highways. Mary E. DeGarmo, director of country life department, National Congress of Mothers, St. Louis, Mo.

4. The School, the College, and the English Farmer. E. J. Russell, director of Rothamsted Experimental Station, Harpenden, England.
5. What the National Government Can Do. Philander P. Claxton, United States commissioner of education, Washington, D. C.

Gardening in the Light of Racial History. Le Roy H. Harvey, Western State Normal School, Kalamazoo, Mich.

The Training of Teachers for School Gardening. S. B. McCready, Ontario Agricultural College, Guelph, Canada.

Nature Study and the City Child. John L. Randall, supervisor of children's gardens, Pittsburgh, Pa.

A Garden for Every Child. Emilie Yunker, State Normal School, Louisville, Ky.

Discussion: Ada Van Stone Harris, assistant superintendent of schools, Richmond, Va.

School Gardens and the Fundamentals of Education. Otis W. Caldwell, professor in University of Chicago, Chicago, Ill.

Report of the Committee on Course of Study in Agriculture. E. C. Bishop, Schools Section, Extension Department, Iowa State College of Agriculture and Mechanic Arts, Ames, Iowa, chairman.

Discussion.

The Relation of Better Highways to Country Life Betterment. Mary E. De Garmo, Special Agent, United States Office of Public Roads, St. Louis, Mo.

Joint Session with the American Nature-Study Society and the School Garden Association of America.

Topic: School Gardens and Agricultural Experiment Plots for Rural Schools.

Rural School Gardens Differentiated from City School Gardens. Van Evrie Kilpatrick, president of School Garden Association of America, 4852 Broadway, New York, N. Y.

Rural School Gardens: Results in Ontario, Canada. S. B. McCready, Ontario Agricultural College, Guelph, Canada.

Home Garden and Experiment Plots. Elliott R. Downing, assistant professor in School of Education, University of Chicago, Chicago, Ill., secretary of American Nature-Study Society.

Forestry in Rural Schools. E. R. Jackson, United States Forest Service, Washington, D. C.

Topic: Redirection of Rural Education.

The Work of the United States Bureau of Education. Philander P. Claxton, United States commissioner of education, Washington, D. C.

The Plans of the Special Committee of the National Education Association on Rural Education. E. T. Fairchild, state superintendent of public instruction, Topeka, Kans.

The Betterment of Rural Schools Through Agriculture: The Ohio Plan. F. W. Miller, state commissioner of education, Columbus, Ohio...

The Betterment of Rural Schools Through Boys' and Girls' Clubs: The Nebraska Plan. James E. Delzell, state superintendent of public instruction, Lincoln, Nebr.

The Work of the National Committee on Agriculture. Homer H. Seerley, president of Iowa State Teachers College, Cedar Falls, Iowa, chairman.

Topic: The Relation of the Public Schools to the Movement for Recreational, Social and Civic Opportunity.

1. The Schoolhouse as a Social and Civic Center. Frank P. Walsh, Kansas City, Mo.

2. How a Community May Find Out and Plan for its Recreational Needs. Rowland Haynes, field representative, Playground and Recreation Association of America, Minneapolis, Minn.

3. The Relation of Schoolhouse Architecture to the Social Center Movement. Dwight H. Perkins, Chicago, Ill.

4. The Public Library, the Public School, and the Social Center Movement. Arthur E. Bostwick, Librarian, Public Library, St. Louis, Mo.

5. The Organization and Administration of Recreation and Social Center Work. Erich C. Stern, member of State Legislature, Milwaukee, Wis.

6. The School as a Recreation Center. Jane Addams, head resident, Hull House, Chicago, Ill.

7. The Social Center and the Rural Community. Herbert Quick, Editor of *Farm and Fireside*, Springfield, Ohio.

Citizen Coöperation. William H. Allen, director of Bureau of Municipal Research, New York, N. Y.

Civic and Social Center Development. Edward J. Ward, University of Wisconsin, Madison, Wis.

Discussion: Azile B. Reynolds, principal of Kinzie School, Chicago, Ill.; Pauline F. Witherspoon, director of social centers, Louisville, Ky.

The Significance of the Industrial Arts in the Schools. Charles Alexander McMurry, director of Normal Training School, DeKalb, Ill.

Sociological Phases of Industrial Education. Frank M. Leavitt, associate professor of industrial education, University of Chicago, Chicago, Ill.

Discussion: William J. Bogan, principal of Lane Technical High School, Chicago, Ill.; Charles H. Bailey, director of manual training, State Teachers College, Cedar Falls, Iowa; David Snedden, commissioner of education, Boston, Mass.

The Place of Art in the High School of Commerce. J. Earl Griffith, Central Commercial and Manual Training High School, Newark, N. J.

The Value of Art in the Industrial School. Walter Sargent, professor of aesthetic and industrial education, University of Chicago, Chicago, Ill.

The Dresden Congress. Florence E. Ellis, supervisor of drawing, Cleveland, Ohio.

Discussion: Rose Fetterof, state supervisor of art instruction, Harrisburg, Pa. Vocational Training Old and New. T. Vernetta Morse, president of Artcraft Institute Guild, Chicago, Ill.

The Needed Changes in Manual Arts. Fred D. Crawshaw, professor of manual arts, University of Wisconsin, Madison, Wis.

Is the Introduction of Technical Subjects in the Eighth Grade Advisable? Wilson H. Henderson, supervisor of manual training, Springfield, Ill.

Discussion: E. A. Wreidt, fellow in education, University of Chicago, Chicago, Ill.; Robert W. Selvidge, professor of manual arts, Teachers College, University of Missouri, Columbia, Mo.; L. L. Summers, director of manual training in State Normal School, Oshkosh, Wis.; L. W. Wahlstrom, Francis W. Parker School, Chicago, Ill.

Topic: Science in Practical Courses.

1. Communal Chemistry: How May the Teaching of Chemistry Promote the Well-Being of the Community? Lewis B. Allyn, State Normal School, Westfield, Mass.
2. Chemistry and Household Science. J. F. Snell, MacDonald College, Ste. Anne de Bellevue, Quebec, Canada.
3. Applied Botany. George A. Works, student in agricultural education, University of Wisconsin, Madison, Wis.
4. Physics and the Equipment Problem. J. A. Randall, Pratt Institute, Brooklyn, N. Y.

JOINT SESSION WITH THE DEPARTMENT OF PHYSICAL EDUCATION.

Sexual Reproduction in Animals: The Purpose and Methods of Teaching It. Mary Putnam Blount, instructor in zoology, University High School, Chicago, Ill.

The Physical Growth of the Child and Its Hygiene. W. A. Evans, M.D., Northwestern University, Evanston, Ill.

The Selection of Physical Activities as Determined by the Laws of Growth. William H. Burnham, professor of pedagogy and school hygiene, Clark University, Worcester, Mass.

DEPARTMENT OF CHILD HYGIENE.

President's Address: The Contribution of Hygiene to Education. William H. Burnham, professor of pedagogy and school hygiene, Clark University, Worcester, Mass.

The Hygiene of Rural Schools. Fletcher B. Dresslar, specialist in school hygiene, United States Bureau of Education, Washington, D. C.

Child Hygiene in the Primary Grades. Arnold L. Gesell, assistant professor of education, Yale University, New Haven, Conn.

DEPARTMENT OF SCIENCE INSTRUCTION.

President's Address, David Starr Jordan, president of Leland Stanford Junior University, Stanford University, Cal.

Eugenics. William A. McKeever, State Agricultural College, Manhattan, Kans. Scientific Study of the Psychology and Physiology of Adolescence:

- (a) A Study in Adolescent Efficiency. J. H. McCurdy, director of physical department, International Y. M. C. A. Training College, Springfield, Mass.
- (b) A Psychological Classification of High School Boys. George E. Dawson, director of department of child study, Henry Barnard School, Hartford, Conn.

Topic: The Public Schools and the Public Health.

1. The Duty of the State in the Medical Inspection of Schools; Results which the Public may Rightfully Expect. Fletcher B. Dresslar.
2. The Teaching of Hygiene in the Schools: Public, Personal. David Starr Jordan, president of Leland Stanford Junior University, Stanford University, Cal.
3. Sanitation in the Rural Community. Charles E. North, M.D., New York, N. Y.
4. Medical Inspection and Medical Freedom. Charles A. L. Reed, M.D., Cincinnati, Ohio.
5. Some Problems in Education, as Related to the Public Health. Harvey W. Wiley, contributing editor and director of bureau of foods and health, *Good Housekeeping Magazine*, Washington, D. C.

Educational Values of the School Yard, or Playground. E. B. De Grott, superintendent of playgrounds and sports, South Park Commission, Chicago, Ill.

Discussion.

Facilities for Industrial Training. Charles A. Prosser, secretary of Society for the Promotion of Industrial Education, New York, N. Y.

Continuation Schools. Edwin G. Cooley, Chicago, Ill.

Discussion.

- (a) The High School Course in General Science. V. G. Barnes, High School, Madison, Wis.

Discussion: Ada L. Weckel, Oak Park and River Forest Township High School, Oak Park, Ill.

- (b) Method in the General Science Course. John G. Coulter, Bloomington, Ill.

Discussion: W. L. Eikenberry, University High School, Chicago, Ill.

EDITORIALS.

The American Home Economics Association has rendered nationwide service during the past summer, by the meetings held under its auspices at Lake Placid, Chicago, and East Lansing, which are reported elsewhere in this issue.

The Summer Meetings. The Lake Placid meeting brought together a group of persons concerned with the teaching of household and institution administration or with service in these fields. One of the noteworthy features was the presence of a number of experts in scientific management, municipal problems, and the organization of labor, who made invaluable contributions to the program. The gathering primarily emphasizes the fact that household management, whether domestic or institutional, is being professionalized. The statement that the household is a business undertaking expresses, of course, only a part truth. It is of profound significance for the personal life of the home, however, that the business of the home is to be approached, in the future, in business terms, with the same standards of efficiency and economy that are being upheld in other fields.

The Home Economics papers at the meeting of the National Education Association at Chicago struck the home note in a program otherwise largely scholastic, and were especially well chosen in their bearing upon the timely topics of standards of living and cost of living. Home Economics, it was seen, is an essential element in national prosperity and welfare. The next meeting of the National Education Association, it was recommended by this convention, will be held in Salt Lake City next summer. If this plan is carried out it will provide opportunity for a much needed Home Economics meeting in the West.

The Graduate School at East Lansing was the most successful ever held. It more than justified the plan of bringing together every other year those teachers in Home Economics who find it possible to meet and consider the advances in subject matter and methods of teaching in this new field of instruction. Workers in this field do well to remember that their work is not yet finished and that their instruction must be constantly improving. Some one has raised the

question whether future meetings of the school might not be held in connection with the regular summer sessions of different universities where credit might be given for courses taken.

In these meetings of the summer the Association has done a large service for the progress of Home Economics. Credit belongs to each member of the Association who by membership dues furnishes means for such activities.

In this number, programs and brief summaries are printed of the summer meetings of the American Home Economics Association, as well as several papers presented at the Administration Section held at Lake Placid. Other papers presented at the Lake Placid meetings and the discussion which the papers brought out will appear in the December number.

For the benefit of those particularly interested in the work of this Section, it is proposed to reprint the papers and discussion in a pamphlet which will be sold in the same way as other reprints of material which has appeared in the JOURNAL. It is believed that this plan will meet the needs of members and will be a convenience for librarians and others who are interested in the collection of literature bearing upon the subject of institution management.

As was natural, teaching was the first professional field open to Home Economics students. In the last few years, however, a wide range of positions, institutional, municipal, and industrial, has come to be recognized in which the subject matter of Home Economics finds application in practical ways. As food economics and dietetics are the divisions of household science most fully developed, so these fields have first found practical application.

Such positions as institutional dietitian, visiting dietitian, lunch-room manager, purveyor, or institutional buyer, are definitely recognized as positions of dignity which command compensation as good as that for teaching. Domestic art finds its commercial applications similarly in the professions of interior decoration, costume design, professional shopping, dressmaking, and millinery. The costume designer, for example, may find employment with a newspaper or magazine, or may take a position as a designer in a tailoring estab-

lishment, while educational positions in this field are open to those who prefer teaching.

Other specialized positions are being recognized. The supervisor of a large institutional laundry is a responsible position, commanding in one case a \$1200 salary with home. Some adventurous women have even experimented with the management of a commercial laundry, though, with one well-known exception, these have all been conducted on a small scale. The manager of a lunch room in a commercial establishment, a bank, a department store, has a field of work full of interesting possibilities and of great responsibility.

The time was not long ago when young women turned to teaching as the one profession open to them. Now vocational opportunities are opening on every hand. The volume on *Vocations for Women Other than Teaching*, published by the Women's Educational and Industrial Union of Boston, offers guide posts in these new fields. It should be in every Home Economics library. Our college departments and technical institutes are spying out the possibilities of vocations relating to Home Economics, and students who are contemplating a Home Economics course have already a wide choice in fields other than teaching.

The question of compensation in these new fields is always an important one to the inquirer. In general it may be said that salaries tend to be at least equal to teachers' salaries, with this important qualification: The business and commercial world ever recognizes initiative and the power of assuming responsibility by increased compensation. The person in a managing position controls the purse strings, and is able to effect savings and economies; the compensation of such a person is limited only by the value of that indefinite but infinitely useful qualification, executive ability.

Our institutions are not likely to over-emphasize the opportunities in these new non-teaching fields. Because of them, the individual student has now a wider range of choice and should be able better to choose work in accordance with personal qualifications. Educational work also will profit indirectly by these newer developments, and a better adjustment of persons and positions all the way around is effected.

A discussion in a recent number of the *Experiment Station Record* of the need and the opportunity for research work in Home Economics is so much to the point that it seems well to direct **Research and** the attention of readers of the JOURNAL to much **Home Eco-** that was there said.
nomics.

One of the significant educational developments of recent years has been the increasing recognition accorded to instruction in Home Economics. Although the term itself was unfamiliar a generation ago, at the present time Home Economics courses are being offered in this country in more than twelve hundred institutions, of which over two hundred are colleges and normal schools. Extension work has likewise been well organized in many of the States, largely with a view to reaching the women on the farm, although the need for work for the benefit of city and town housekeepers has not been, by any means, lost sight of. In short, Home Economics instruction is already emerging from the pioneer stage and becoming an accepted factor in American education.

One of the principal obstacles which educators are encountering in their efforts to reduce the subject to sound pedagogical form is the comparatively retarded development of experimental work. It is well recognized that, as is the case with other composite branches of learning, Home Economics is largely a specific application of the principles of chemistry, bacteriology, physics, and other subjects; but, as is also the case with agriculture and other composite subjects, there are required to make it most effective special investigations and experiments, made from the standpoint of those who appreciate the needs and use to be made of such information.

Considering Home Economics as including the economic, scientific, and esthetic aspects of food, clothing, and shelter as connected with their selection, preparation, and use by the family in the home or by other groups of people, it is a matter of everyday knowledge that many of its practical applications are still largely governed by rule-of-thumb or by tradition. For example, the laws of heat are well understood in the scientific world, but their application to cookery, to food preservation, or to the heating of houses needs far more investigation that it has thus far received.

The present is preëminently the era of machinery, but the improvement of household appliances has been left almost entirely to commercial exploitation, and progress has admittedly lagged far behind

achievements in the factory and on the farm. Yet it is surely true that if there are to be reliable comparisons of the merits of different foods or textiles, or of different labor-saving or sanitary devices, there must be scientific tests by those familiar with the housekeeper's needs and competent to work out her problems.

It is even more important now than it was a few years ago that there should be a sound scientific basis for instruction on how food materials can be best utilized in family diets, how houses should be constructed, furnished, and managed, and what materials are most suited for clothing, because of late years there has been less and less opportunity to acquire experience in such matters in the home itself. Two or three generations ago each home, and especially each rural home, was practically self-sufficient, producing not only its own food supply, but, to a large extent, its own clothing, and constructing its buildings in such a simple way that any intelligent and experienced laborer could understand the principles involved. Now, however, a great many branches of work which were formerly home industries have been taken over by factories or by specialized workers, and there is no longer the opportunity to learn about them by practical trials in the home. In many cases such knowledge as is available is still, to a certain extent, handed down in an empirical way from mother to daughter, but in many others it would soon die out entirely did not schools or other educational agencies supply it, and these must acquire exact knowledge before they can transmit it.

It is true that many of the problems encountered are more or less isolated in application, and that much can be accomplished by individual initiative within the home and many housekeepers do solve their special problems. But it is as unreasonable to look to the housekeeper for progress along technical lines, which yield general results obtained under contrasted conditions, as to expect the farmer to work out the fundamental principles of his art.

Just as the trained experimenter was needed for the conversion of agriculture from a traditional to a scientific basis, so all that relates to hygiene and household methods and to the host of related questions demands careful study by experts having proper equipment for the undertaking.

Fortunately the dependence of Home Economics instruction upon research is becoming generally recognized and the belief that housekeeping is largely a matter of inspiration and feminine intuition,

with no accumulated store of information to draw upon, is rapidly giving way to the modern view that "a knowledge of housekeeping is not a matter of sex but of science."

During the last twenty or thirty years much attention to research by laboratory methods in problems affecting the home has been given, to some extent by Home Economics workers themselves and even more largely by scientists in associated lines. Agriculture in particular has contributed most valuable assistance, the community of interests between the production of food supplies, textiles, and other farm products and their utilization within the home being generally recognized.

Most of the agricultural experiment stations have from time to time studied problems which have to do with the handling, storing, and marketing of foods, while many have had to deal with food and drug inspection. They have also studied many technical as well as practical problems of milling and dairying, and other problems which pertain to the home as distinguished from the farm as an industrial enterprise. Of such work may be mentioned studies of the composition and digestibility of foods, numerous studies of cooking processes and of canning, dietary studies, the improvement in quality of cotton, flax, and wool, studies of household equipment and conveniences, and the cost of board for laborers on farms.

An important service has also been rendered by the engineering experiment stations established at several of the agricultural or "land grant" colleges. Comparisons of different illuminants and fuels, and studies of sewage disposal plants and of building materials, may be cited as types of the work already undertaken.

It is well known that the U. S. Department of Agriculture has made a large number of contributions to Home Economics, the nutrition investigations of the Office of Experiment Stations and the activities of nearly every bureau containing much of interest. The work on food adulteration of the Bureau of Chemistry, the studies of household insect pests of the Bureau of Entomology, and the studies of the cost of home labor of the Bureau of Statistics are examples of this interest in home problems.

The contributions of Home Economics workers themselves have been numerous and meritorious, especially in view of the comparative newness of the subject and the lack of organized research agencies. The attention which is being concentrated on the preparation of research workers is yielding results of much promise, and the list

of additions to knowledge in the form of theses for advanced degrees is each year becoming more important.

Contributions from the more mature workers actively engaged in instruction duties are even yet relatively few. This of course is unfortunate since their qualifications and experience would seem to promise results of exceptional value. But when one recalls the demands made on an instructor's time by classroom work, by the necessity for preparing outlines and text books, by the extension work many of them do, and by other necessary activities, it is obvious that not much time remains for research.

Notwithstanding these difficulties, to which may be added those imposed by an absence of funds for research and often of equipment, the uncertainties as to the publication of results, and the lack of many other advantages enjoyed by a regularly organized research institution, it is believed that there are many opportunities for adding to the store of knowledge by the use of existing facilities. For instance much can be accomplished by coöperation with other departments, for example bacteriology, chemistry, or engineering. This has been proved by a number of recent instances of such coöperative work.

The responsibility for real progress in research, however, must rest largely with the Home Economics departments. Whatever the assistance rendered by other agencies, the upbuilding of a distinctive body of Home Economics knowledge must come mainly from investigations by the Home Economics workers themselves, rather than through the mere adaptations of either traditional methods or "borrowed science." It is well known that this has already been the experience in agriculture, and the close analogy between the two studies warrants the prediction that the future of Home Economics instruction depends very largely upon its establishment on a sound scientific foundation by those to whom its development has been specifically intrusted.

Doubtless in many cases the undertaking of comprehensive investigations by Home Economics instructors is impracticable under present conditions, but as in the early days of agricultural instruction, there are a host of smaller projects awaiting and needing solution for which opportunity might be found. For instance, in the field of textiles, there may be cited studies of the relative durability of different fabrics as affected by such controllable conditions as the kind of material, its thickness, and its closeness of weave; the permeability

of textiles and other materials to air; the testing of various solvents in removing stains from fabrics; and the comparison of soaps and detergents in different waters and temperatures. There might well be additional studies of the comparative cost of household fuels and of illuminants, of the use of nonconducting materials in stoves and other cooking appliances and utensils, and of the solubility of kitchenware in different waters, fruit acids, and other liquids. The physics of cookery offers a great opportunity, for instance in the study of the relation of the specific gravity of foods to quality. The perfecting of systems of household accounting and the investigation of the lessening of the time requirements of household operations, the actual loss incurred by the purchase of supplies in uneconomical quantities, and the incomplete utilization of "left overs," are other examples, such as will readily suggest themselves to the thoughtful observer. Some of these studies require time rather than special apparatus and might readily be carried through during the long summer vacation, and others demand regular attention and laboratory facilities rather than large amounts of time.

In many of these cases not the least of the benefits to be secured would be the stimulation of the research spirit of the teacher, for the generally accepted opinion of President Jordan of Leland Stanford University that "no one can be a great teacher without the spirit of research; without this he lags behind the progress of knowledge and his mental equipment becomes second hand," is as applicable to Home Economics as to other subjects of instruction. There is also the same broadening and stimulating effect on advanced students in Home Economics as on those in other lines.

The increasing attention which is being devoted to the more thorough training of prospective teachers in research methods is a recent development which augurs well for the future. The steadily improving facilities for graduate study, and the numerous summer schools now available are destined to add greatly to the ultimate efficiency of Home Economics instruction and experimentation. Once the inculcation of the spirit of research into the investigators of to-morrow can be accomplished, the establishment of Home Economics as a well-defined science will be assured, and its consistent development may be confidently awaited.

With the returning of teachers and workers from vacations, the canvass for the Ellen H. Richards Home Economics Memorial Fund will be pushed forward vigorously. We hear of many schools and colleges which have already raised sums of money, often by coöperative effort through a committee of students, a candy-sale, an entertainment, or some other method. Other institutions are planning to carry out such efforts this fall. The publication of the Life of Ellen H. Richards by Caroline L. Hunt, extended notice of which will be given in a later issue, will greatly aid in the canvass. The Memorial fund is meantime going forward.

FUTURE MEETINGS OF THE ASSOCIATION.

A meeting of members of the Executive Committee of the American Home Economics Association was held at the Auditorium Hotel, Chicago, June 27, 1912, and action was taken (since ratified by members of the committee not present) as follows, regarding the coming meetings of the Association:

It was decided to try the experiment of a summer meeting of the entire Association, and to this end it was voted to accept the invitation of Cornell University to hold such a meeting at Ithaca, N. Y., at the end of June, 1913. This meeting, it is planned, will include all sections of the Association, with a general program and the sectional programs of the Administration Section and Housekeepers' Committee. It is desired especially to make the meeting one national in character.

It was further voted to accept the invitation of Simmons College, Boston, for a meeting in that city in connection with the meetings of the American Economic Association and the American Sociological Association during the Christmas holidays, 1912; and the New England Home Economics Association has been asked to coöperate in the arrangements. It was voted that this should be a one-day meeting (December 31) and that the Committee on Nominations should be asked to report at this meeting the results of an election of officers for 1913 to be held by mail preceding the meeting.

The Housekeepers Committee announces that a conference will be held under its auspices at Chicago, November 20, 1912, to consider problems connected with the management of the private home. Information can be secured from Mrs. Lyndon Evans, chairman, 1240 Astor Street, Chicago, Ill.

BENJAMIN R. ANDREWS,

Secretary, American Home Economics Association.

NEWS FROM THE FIELD.

The Second International Congress of Farm Women will meet in connection with the Dry Farming Congress at Lethbridge, Alberta, Canada, October 22 to 25, 1912. The official call for the congress has been sent to the chief executives of nations, governors of states, secretaries of agriculture, presidents and officers of universities and colleges where agriculture is taught, national, state, or local organizations having for their object the enlargement of agricultural education and the uplift of home life upon the farm, editors of magazines and of other literature devoted to better homes and rural life, women on the farm, and others interested.

The congress is working for organized effort at rural community building, beautifying and brightening of homes, more frequent opportunities for social intercourse, better education of children, lightening of toil in the home, and the raising of neighborhood standards, mentally, physically, morally, and socially.

Among the speakers will be Miss Alice Ravenhill of Vancouver, late of England; Prof. George A. Putnam of Toronto, a leader in women's institute work in Canada, who will give the report of the Ontario Women's Institutes; Mrs. Jennie Muldrew, in charge of the Alberta Ladies' College at Red Deer, Alberta, whose subject will be Modern Education of Women; Mrs. Marie Turner Harvey, in charge of the consolidated school at Kirksville, Mo., conducted under state auspices, and one of the leading advocates of the consolidated school system, who will speak on consolidated schools; Dr. Warren H. Wilson of New York, one of the speakers at the first International Congress of Farm Women at Colorado Springs, who will deliver an address on The Rural Church and Its Possibilities as a Center for Community Progress, Amusement, etc., and Miss Irma E. Mathews, superintendent of women's institutes of the Woman's Institute of the State Board of Agriculture of Oklahoma, who will give an illustrated talk on Farm Homes of Our Country.

During the meeting it is planned to have a farm women's session where talks along practical lines by farm women will be given. Mrs. John A. Widtsoe of Logan, Utah, and Dr. Liberty H. Bailey of Cornell University, Ithaca, N. Y., will address the congress.

The objects of the congress are to improve the conditions—financial, physical, social, and spiritual—of agricultural homes, and to encourage greater state and national support for institute and extension work among farm women. It aims to understand more completely the significance of the farm to the life of the nations, and the dignity of the position of the farm woman as co-worker in the most potential and far-reaching of the national industries, to increase conservation of energy through intercourse and observation of processes, to understand modern appliances and education in the scientific management of work, to further develop the home through conference with authoritative experts on dairy methods, poultry culture, kitchen gardening, modern home equipment, problems of nutrition, chil-

dren's welfare, industrial education including Home Economics, increase and proper use of leisure, and the stimulation of social intercourse in rural communities.

The officers of the congress are as follows: President, Mrs. Byrtha L. Stavert, Editor *Country Life in Canada*, Winnipeg, Man.; vice-presidents, Miss Irma Mathews, superintendent of Women's Institute, Oklahoma City, Okla.; Mrs. Clark W. Kelley, Devil's Lake, N. D., and Mrs. John A. Widtsoe, Logan, Utah; secretary-treasurer, Mrs. John T. Burns, Lethbridge, Alberta.

During the Congress there will be held an exhibition of labor-saving devices for the farm home, and a demonstration of sanitary and hygienic devices, in connection with which lectures will be given.

The opening meeting of this congress was held in Washington, September 4, and the other meetings, both business and scientific, in New York City, September 6 to 13.

Eighth International Congress of Applied Chemistry.

The President of the United States was patron of the congress, and the officers were as follows: Honorary president, Dr. Edward W. Morley; president, Dr. William H. Nichols; secretary, Bernhard C. Hesse.

In addition to the formal opening session of the congress at Continental Hall, September 4, the Washington meeting included numerous social features. Although President Taft found it impossible to be present at the opening session, as had been his intention, he received the members at the White House, and made a brief address. There was also a reception for the members of the congress given by the regent and secretary of the Smithsonian Institution at the new building of the National Museum.

At the opening meeting, the address of welcome was delivered by Dr. William H. Nichols, president of the congress. Responses were made by foreign delegates, including Prof. Dr. Rudolph Wegschneider, for Austria; Prof. L. Lindet, for France; Prof. Dr. von Buchka, for Germany; Sir William Ramsay, for Great Britain; Dr. Jokichiro Lemori, for Japan; Commanditore Giacomo Ciamician, for Italy; Prof. P. Walden, for Russia; Prof. A. Stutzer, for Switzerland; and Dr. Samuel Eyde, of Norway, for other countries.

As was the case at the seventh international congress at London in 1909, the program of the meetings of the various sections included much that is of interest to students of Home Economics. As instances may be cited the following: The industry and chemistry of sugar, starch, cellulose, and paper—their chemistry and other features, including flour, bread making, baking powder, paper testing, etc.; the composition of food, metabolism, dietetics, cleanliness in food manufacture; cooking utensils—their manufacture and effect on the composition of food, and related topics; water, soil, sewage, and other questions of hygiene; fats, fatty oils, and soaps; paints, drying oils, and varnishes; combustibles—fuels and illuminants, including the question of energy in relation to these matters; conservation of water for domestic use, and other related topics; India rubber and other plastics; and coal tar dyes, colors, and dyestuffs; as well as matters pertaining to analytical chemistry, and other general and special topics.

The full report was printed in advance, and distributed to the members, as were also separates of many of the papers.

DEPARTMENT

OF

HOUSEHOLD SCIENCE

The International Congress on Hygiene and Demography has just held its fifteenth meeting at Washington, D. C., from September 23 to 28. In connection with the congress a very successful exhibition on health was held, at which the hygienic and demographic work of the United States and its dependencies was illustrated. The congress was organized in two divisions—a division of hygiene in eight sections, and a division of demography, as the ninth section. The topics for the sections were as follows: Hygienic microbiology and parasitology; dietetic hygiene, hygienic physiology; hygiene of infancy and childhood, school hygiene; hygiene of occupations; control of infectious diseases; state and municipal hygiene; hygiene of traffic and transportation; military, naval, and tropical (colonial) hygiene; demography. The Department of State assumed the responsibility of the conduct of the congress, and appointed for the purpose of its organization as president, Dr. Henry P. Walcott, of Massachusetts, and as secretary-general, Dr. John S. Fulton of Maryland.

President Taft was honorary president of the Congress and delivered an address of welcome at the opening session, Monday morning, September 23. Later he received the delegates at the White House.

The public addresses and the section meetings were of unusual interest and value. Much was presented of interest to students of Home Economics, particularly in the section of dietetic hygiene and other sections.

An address of special interest was that by Geheimrat Professor Dr. Max Rubner, President of the Permanent Industrial Commission of the Congresses on Hygiene and Demography, who spoke on Dietetics for the People (Volks Ernährung).

At the eleventh biennial convention of the General Federation of Women's Clubs, held in San Francisco, June 25 to July 5, one session and a conference were devoted to the Household Economics Section, of which Mrs. **Home Economics** Olaf N. Guldlin of Indiana is chairman. The program of the **at the General** meeting was as follows: Mrs. Nash, ex-president Iowa Federation of **Federation of** ation, presiding; Our Problems in Civilization, Mrs. Guldlin; **Women's Clubs.** Some Suggested Solutions—Better Dress Standards, Mrs. John C. Hessler, Ill.; Democracy in the Home, Mrs. W. E. Miller, Ind.; Greetings from California, Miss Ednah A. Rich, Calif.; The Dawn of Tomorrow, Mrs. Olaf N. Guldlin. The subjects for discussion at the conference were these: Home Economics Extension Work—Through Our Colleges, leader, Miss Rich; Through Our Clubs, leader, Mrs. Florence Martin, Louisville, Ky.; Our Most Vital Needs, Mrs. Harriet Pancoast, Palmyra, N. J., and Mrs. Chas. Ott, Waverly, N. Y.; Box Furniture, Miss Louise Brigham, New York City; Household Decoration, Mrs. Hessler.

This School, of Athens, W. Va., of which Mr. C. L. Bemis is principal, will **Concord State** open this fall a new department of agriculture and one of **Normal School.** Home Economics. Miss Sadie Bryson of the University of Minnesota will have charge of the Home Economics work.

The American Association for the Study and Prevention of Infant Mortality held its third annual meeting in Cleveland, October 2 to 5. The provisional program gives the following committees, with a series of papers under each committee: Birth registration; educational prevention of infant mortality: continuation schools of home making, eugenics, housing in relation to infant mortality, midwifery, nursing, and social work; prevention of municipal mortality, and progress in preventive work. Among the speakers were Dr. Jacques Bertillon, Chief of the Bureau of Municipal Statistics Paris, France. The Association had a striking exhibit at the recent International Congress on Hygiene and Demography.

This association held its second annual session at the Michigan State Agricultural College the last of May. The president of the State Federation of Women's Clubs, Mrs. Lucy White Williams, was one of the special guests of the day, and the Federation department of Home Economics was represented by Mrs. H. G. Thornton. Luncheon was served at noon in the Women's Building, giving opportunity for a social hour. At the regular meeting in the afternoon an address on Beauty in Common Things was given by Miss Mary S. Snow, supervisor of household arts in the Chicago public schools. The efficiency of the officers was recognized by their unanimous reflection for the coming year. Miss Grace E. Fuller of the Ypsilanti State Normal College is president and Miss Lenna F. Cooper, of the Battle Creek Sanitarium, is secretary-treasurer.

The Home Economics Association of Scranton, Pa., held a reception in July for the students of Home Economics in Scranton for the summer and for the playground workers. Miss Gwendolyn Stewart, president of the Association, made the address, in which she pointed out the close relationship existing between the home and the playground. Realizing this relation, the Scranton Home Economics Association, during the past summer, has held classes in cooking for girls between eleven and fourteen years of age. In this work the Association has had the help of the Y. W. C. A. and of the Playground Association. Miss Adele Grant, a recent graduate of the Boston Y. W. C. A. School of Domestic Science, taught the classes.

During the past summer this school gave courses in home cookery, advanced cookery, food and dietetics, and domestic art, and Miss Anna Barrows of Teachers College, New York City, gave demonstrations in cookery. The faculty of the school was as follows: Director, Miss Barrows; Assistants, domestic science, Miss Effie J. Race, of the faculty of the School of the Deaf, Jacksonville, Ill.; Miss Lilla P. Frich, Minneapolis, Minn.; Miss Susannah H. Usher, of the University of Illinois; Miss Clara M. Parker, Iowa State College, and Miss Alice M. Thomas, of the Pittsburgh Public Schools; Domestic arts, Miss Laura M. Duntz, of the dressmaking department of Mechanics Institute, Rochester, N. Y., and Miss Gertrude Duntz, domestic art director, Buffalo, N. Y.

A Bureau of Household Research was opened in Philadelphia, September 1, under the auspices of John B. Leeds, M.A., professor of household economics at Temple University.

Bureau of Household Research. The purpose of the bureau is to secure recognition for housework as a distinct and worthy profession. The attempt will be made both to assist housekeepers to plan and carry on systematically the work of the household and to aid young women who wish to work their way through college. Housekeepers who register with the bureau will take a course at Temple University in Household Economics and will be entitled to the services of the bureau both in the way of advice and suggestion regarding their household problems and in securing the assistance of student workers. Students who register with the bureau will give one-half of their time daily to study and recitation at Temple University and the other half to housework. Housekeepers may have one student assisting one day in the week up to four students every day. Students will be given an opportunity either to work in all lines of general housework or to specialize in cooking, sewing, laundry, nursing, care of children, etc. Work will be paid for by the hour according to the proficiency of the student worker.

Students must be graduates of a high school or have done equivalent work in order to register with the bureau. Those taking courses in kindergarten and primary school education at Temple may register with the bureau for practice in the care of children.

Students will live at their own homes or at a club-house adjacent. All arrangements between housekeepers and student houseworkers will be made by the secretary of the bureau, 1831 North Broad Street, Philadelphia. Arrangements are also being made for students who wish to work in institutions, apartment houses, hotels, etc.

Careful records are to be kept as data of value in scientific researches by the bureau in the standardization of household work.

Mechanics Institute of Rochester, N. Y., held its first summer session from June 24 to August 16. Courses in manual training, domestic science, applied art, domestic art, pedagogy, and academic branches were offered.

Mechanics Institute Summer Session. In domestic science elementary, intermediate, and advanced, and general cookery, under Miss Bessie Gillard, Miss Elizabeth C. Van Horne, and Miss May Gillard were given. Classes in elementary and trade dressmaking, elementary, advanced, and trade millinery, elementary and advanced sewing, and shirtwaist making were given in the domestic art department by Miss Theresa Coleman.

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Home, Institution, School

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LOSSES IN THE COOKING OF VEGETABLES.¹

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For some years persons interested in the cost and nutritive value of foods have laid emphasis upon the question of the loss occurring in cooking vegetables, as one of importance in household economy and requiring investigation. It has been a subject of still further significance to teachers of Home Economics who were striving to acquire an understanding of the scientific facts and principles underlying cooking processes, in the faith that with such understanding the subject may be taught as an applied science.

In 1897 the Office of Experiment Stations published Bulletin No. 42 containing a report of analyses made to determine losses in boiling vegetables—those chosen for the investigation being potatoes, carrots, and cabbage. The conclusions drawn from the results of the work emphasized the loss of nutrients from paring potatoes, and from soaking them in water before cooking; likewise from the usual practice of rejecting the water in which the root and green vegetables had been cooked, since such extracts contain a considerable portion of the solids of the fresh substance.

The bulletin had a wide-spread influence. It brought about a pretty general recognition of this source of waste, and an effort on the part of teachers to diminish it. In it the case of the Irish potato had been made clear. The losses were negligible when potatoes, without the skins removed, were plunged into boiling water, and cooked rapidly. The results for cabbage and carrots were not as conclusive.

¹ Submitted in partial fulfilment of the requirements for the degree of Master of Arts in the Faculty of Philosophy, Columbia University.

In all methods used, the losses were considerable, averaging 25 per cent of all nutrients for carrots, and 30 per cent to 40 per cent of all dry matter in cabbage. Advantage of one method over another was slight. On the whole, however, it seemed wise to teachers to recommend cooking in as little water as possible; and conservation of the nutrients lost in solution by using the liquid from the cooking, in the making of sauces to be served over the vegetable, or in soup. Such a recommendation was often difficult to use in practice. Many persons have no liking for sauces on vegetables and the soup kettle is not always an available means of using such extracts. Recognizing these difficulties, some teachers have assumed the application of the Irish potato method to many of the root vegetables, believing that cooking "in the jackets" would preserve their nutrients, sugars and mineral materials, from solution in the water. A few have urged the cooking of some of the green vegetables—spinach, and so-called greens—without water in their own juices and which are quite quickly extracted.

Throughout the report just cited, chief stress is laid upon losses in nitrogen and carbohydrate. The importance of such losses is measured by the ratio of their money value to the family income. Similarly, teachers generally have seen the question as one of preventable waste, having an economic significance in proportion to the element of waste. The theory was parallel with the explanation of nutrition in terms of protein and energy metabolism. Our present understanding includes also the mineral metabolism.

The need of the body for mineral substance has long been recognized and affirmed in general statements. But further than the skeletal requirements for calcium, and the office of haemoglobin in the oxidative processes, their functions in nutrition has been little emphasized. Recent work, however, leads strongly to the belief that a balance for mineral foods is as essential to physical well-being as it is for nitrogen or energy. It is known that in some way contractility and irritability of muscle tissue are dependent upon certain inorganic salts; that the rhythmical beating of the heart is controlled by calcium, sodium, and possibly potassium present in the blood and tissues; that retention of sulphur and phosphorus within the body runs parallel to retention of protein; that the regulation of the alkalinity of the blood is accomplished, in part at least, through the phosphates; that the blood and other body fluids must be kept alkaline through a balance between acid and base decomposition products in metabolism.

It is conjectured that the complicated chemical reactions of the protein metabolism are made possible and, indeed, controlled by the electrolytes.

Vegetables are plentiful sources of mineral foods. They furnish iron in much larger proportion than do most animal foods. They are our chief dependence for potassium and sodium salts of organic acids. In the processes of metabolism these acids are oxidized. The bases become available for neutralization of the phosphoric and sulphuric acids resulting from the breaking down of protein; thus helping to maintain the alkalinity of the body tissues and fluids. It is clear that the establishment of these facts adds to the value formerly attributed to vegetables as food, increases especially the significance of green vegetables in the dietary; and emphasizes the wisdom of conserving their mineral constituents.

This bit of investigation was undertaken, therefore, in the hope of obtaining some analyses whereby the relative losses from the methods of cooking commonly employed might be compared. It was hoped that the results, though too few from which to generalize broadly, would, nevertheless, point to the method of least waste; and thus contribute somewhat toward the teaching of cooking as applied science.

The method most commonly employed in cooking vegetables is boiling in water, rejecting the water. A few people steam certain green vegetables. It seemed reasonable to assume that of these two methods steaming offered the probability of a smaller loss of soluble substances. That, however, was an assumption to be tested. Spinach and cabbage were selected as the most generally used of the green vegetables, the type known to lose most through boiling in water. Both were prepared and cooked as though for serving, except that seasonings were not added.

The spinach was washed carefully many times, discarding all portions which appeared damaged. This occasioned a loss of one-third the purchased weight, though largely of sand and soil. After drying to remove adhering drops of water and thorough mixing to insure uniform samples, it was divided into three portions—No. 1 was reserved for analysis of the fresh substance; No. 2 was steamed over a kettle of boiling water; No. 3 was boiled in as little water as was deemed possible without replenishing. The time required for steaming and boiling was the same. Judged by appearance, the bulk of spinach left from the steaming was half greater than of that which had been

boiled. The three portions were then spread on enameled-ware trays and dried in the ovens of the gas ranges at a temperature not above 100°C. The resulting air dry material was weighed, ground in a coffee mill, and bottled ready for analysis.

The method of preparing and cooking the cabbage was the same, except for the repeated washings. The outer bruised and discolored leaves and the heart were rejected. The waste amounted to one-sixth the weight as purchased. To insure representative samples, three heads of cabbage were cut into thirds, one-third being distributed to each of the portions, of which one was dried uncooked; one after steaming; one after boiling in water. The time required for steaming was about one-third longer than for boiling, and there was no noticeable difference in bulk between the two methods.

With carrots, the analysis of the bulletin before cited showed increasing loss according to the proportion of cut surface. The plan followed here was to compare the results of the usual and the least amount of such surface. The carrots as purchased were divided into three lots, as nearly uniform as could be judged by size and weight. Those of lot No. 1 were scraped, put through a meat-grinder and dried; of lot No. 2 were washed and plunged whole into boiling water; of No. 3 were scraped, cut into pieces of a size attractive for serving (approximately $\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}$ inch), and likewise nearly covered with boiling water. As might be expected, the carrots boiled whole were somewhat longer in softening than were those previously cut into small pieces. Both portions were crushed, dried in the gas ovens, ground, weighed, and put into bottles.

Calculations of total solids and moisture content were made from samples of the above air dry substances, after further drying (to constant weight) at 100°C. The weight of ash from samples designed for other determinations afforded data for the total ash content. Determinations of phosphorus, calcium and magnesium were made as follows:

TABLE I.

Losses in cooking vegetables. Percentage of fresh edible portion.

KINDS OF VEGETABLES.	SOLIDS.	ASH.	P ₂ O ₅ .	CaO.	MgO.
		<i>Per Cent.</i>	<i>Per Cent.</i>	<i>Per Cent.</i>	<i>Per Cent.</i>
Spinach (boiled).....	31.59	51.65	52.33	6.89(?)	60.38
Spinach (steamed).....	0.18	9.34	5.23	8.69	7.85
Difference.....	31.41	42.31	47.10	+1.80(?)	52.53
Cabbage (boiled).....	32.86	42.62	33.93	27.66	26.71
Cabbage (steamed).....	2.54	11.47	1.79	9.31	4.23
Difference.....	30.32	31.15	32.14	18.35	22.48
Carrots (cut up and boiled)..	10.05	11.48	22.88	10.88	19.19
Carrots (boiled whole).....	6.28	7.38	17.97	8.77	19.19
Difference.....	3.77	4.10	4.91	2.11	0.00

TABLE II.

Losses in cooking vegetables. Percentage of solids.

KINDS OF VEGETABLES.	ASH.	P ₂ O ₅ .	CaO.	MgO.
	<i>Per Cent.</i>	<i>Per Cent.</i>	<i>Per Cent.</i>	<i>Per Cent.</i>
Spinach (boiled).....	29.03	30.01	+36.00	42.11
Spinach (steamed).....	9.21	5.33	8.58	7.73
Cabbage (boiled).....	12.39	+0.32	+10.01	+11.83
Cabbage (steamed).....	9.18	+0.63	5.91	1.62
Carrots (cut up and boiled).....	6.91	13.84	0.05	8.01
Carrots (boiled whole).....	4.90	12.46	2.61	14.42

A first glance at Table I reveals the relatively small losses from steaming and the great losses from boiling cabbage and spinach. Losses in ash constituents as against total solids are given added significance by the fact that much of the solid substance is cellulose and material not digested. The losses from boiling spinach are around 50 per cent, except in the case of calcium, where there is doubt of the figures due to a known source of error in the analysis. The losses for cabbage though lower, are, nevertheless, large—something more than 30 per cent. And though the losses for carrots are still less, they are of significance, averaging somewhat more than 15 per cent.

These figures are borne out by the report of a French investigation² in which cabbage, Brussels sprouts, cauliflower, celery, asparagus, corn, beans, and lentils were boiled thirty minutes. The average of losses was 36 per cent for total mineral matter, and 50 per cent for

² Experiment Station Record, vol. 22, no. 4, p. 368.

potassium. Similarly large losses of total salt, and an even higher percentage loss of potassium (72 per cent), were found from the long cooking of several cereals, dried beans, and peas.

A comparison of the figures in Table I shows a much lower and a relatively insignificant loss from steaming the green vegetables used. The superiority of the method which effects a saving of more than 40 per cent of the ash for spinach and 25 per cent for cabbage hardly seems open to question.

With carrots, although there is a distinct saving from boiling whole, without removing the skins, the gain is less than was expected—only about 3 per cent. The analyses of Irish potatoes referred to before showed a gain of 15 per cent from boiling “in the jackets.” There is, however, an economy of substance and of time not appearing from the analysis. The waste involved in scraping the fresh carrots was 20 per cent; that in peeling after boiling 10 per cent of the weight as purchased. Further, the process of removing the skins after cooking is easier as well as shorter than scraping beforehand.

It should be noted here that the analyses for sugar loss from carrots were made including steaming as a method of cooking. The results obtained indicate that steaming should have been included in this comparison. Judging from the sugar losses, it should be as effective a method for economy of salts as with spinach or cabbage.

The calculations of the losses as percentage of solids, shown in Table II permits a comparison of the methods of cooking according to the food substance served, aside from its value according to the amount of fresh substance cooked. It will be noticed that each group shows a larger loss of total salts from boiling. The plus signs indicate an apparent gain instead of loss, as compared with the analyses of solids from the raw material. In each case there is a saving of phosphorus, by steaming, as with carrots, boiling whole. The apparent disagreement between the figures showing gains and the loss in total salts, may be explained by the greater loss of potash salts. Such an explanation finds support in the enormous losses of potassium reported by the French investigation.

Judged from the analyses already given, the contribution of carrots to the mineral metabolism is important. In common with other similar root vegetables, they are also a source of carbohydrate in the diet. According to Farmers' Bulletin No. 295:³ “Sugar is an important constituent, 12 per cent being sometimes present, though perhaps, 5 per cent or 6 per cent would more nearly represent the average.”

³ Extract from Farmers' Bulletin No. 295, p. 37.

A judgment, therefore, as to the method of least waste in cooking carrots must take into account not only losses of salts but of carbohydrate.

Analyses to determine the losses of soluble carbohydrates were made from the water employed in the cooking processes. To those already used, steaming was added.

Steaming showed a loss of 0.48 grams soluble carbohydrate per 100 grams carrot, or about 6 per cent of the amount found in the raw substance. Boiling whole showed a loss of 1.44 grams or 17 per cent. Boiling after cutting up showed a loss of 2.18 grams or 26 per cent.

Confirmation of these figures to a considerable degree is offered in a European investigation, wherein it was found that when carrots were steamed they became soft a little more quickly than when cooked in hot water; and lost considerably less material. The water over which they were steamed contained 0.69 per cent of the total material, as compared with 3.75 per cent in the case of the water in which they were boiled.

The results of this investigation emphasize throughout the large percentages of mineral constituents extracted by boiling spinach, cabbage, and carrots in water; likewise a considerable proportion of soluble carbohydrate extracted from carrots. The green vegetables lost most heavily. Spinach gave up more than 50 per cent, and cabbage more than 40 per cent of all salt present in the fresh substance; while the carrots which were cut up before boiling lost $11\frac{1}{2}$ per cent of total salts, and 23 per cent of phosphorus in addition to 26 per cent of total soluble carbohydrate.

These figures find essential corroboration in the general averages for similar losses reported in the investigations already referred to; which also justify the applications of deductions from them to many other vegetables of the same types.

All the work points clearly to the conclusion that such losses are too great to be disregarded whether they be estimated as loss of money or of food nutrients. That, in turn, emphasizes the importance of utilizing the material extracted; or for employing a method of cooking by which it is more largely retained.

In these trials, the losses from steaming averaged about 10 per cent for spinach and cabbage—a saving as compared with boiling of 40 per cent and 30 per cent respectively, while boiling carrots whole without removing the skins saved about 4 per cent of the losses resulting from cutting up before boiling. It is to be regretted that this investigation

affords no data as to the mineral loss from steaming carrots, since the small loss of soluble carbohydrate resulting from the use of that method suggests the probability of a similarly small loss for other soluble constituents. The water over which the carrots were steamed contained only 6 per cent of the soluble carbohydrate present of the soluble substance—a saving of 11 per cent over the method of boiling carrots whole; and of 20 per cent over the usual method of cutting into small pieces before boiling. These results are confirmed by other analyses only in the matter of soluble carbohydrate loss from carrots. They show, however, positive gains in all instances. The losses of mineral substance from the green vegetables, and of sugars from carrots through steaming, were relatively small, and the advantage over boiling in water correspondingly large. Cooking carrots whole effected an economy of 4 per cent of the salt; which must be considered as still further increased by a saving of 10 per cent of the fresh substance due to decreased waste from removing the skins after boiling. Even to this there is still to be added an economy in time and effort through peeling after cooking.

These trials, therefore, warrant the suggestions that wherever the materials extracted by boiling vegetables cannot be acceptably utilized, a very large proportion of the loss of mineral salts from green vegetables and of soluble carbohydrate from roots may be prevented by cooking in steam. It seems probable that steaming root vegetables will protect from loss of mineral substances in like degree. It is proved, to the extent of these observations, that cooking carrots whole decreased the losses of both mineral salts and sugar in a sufficient measure to justify the use of this method of cooking rather than of the one more commonly employed.

REFERENCES FOR ANALYTICAL WORK.

Sherman: *Methods of Organic Analysis*.

Alsen: *Quantitative Chemical Analysis*.

Lincoln and Walton: *Elementary Quantitative Agricultural Analysis*.

REPORTS OF INVESTIGATIONS.

U. S. Dept. of Agriculture, Office of Experiment Stations:

Bulletin No. 42, *Losses in Boiling Vegetables*.

Experiment Station Record, vol. 22, no. 4, p. 368. Abstract from Maurel and Corcassagne: *Blanching Vegetables*. Maurel and Corcassagne:

Loss of Salt when Cereals and Vegetables are Boiled in Water

Bulletin No. 28, *Chemical Composition of American Food Materials*.

U. S. Dept. of Agriculture, *Farmers' Bulletin* No. 295, p. 37.

A RATIONAL METHOD IN THE PRACTICE FIELD FOR STUDENTS IN DIETARY ADMINISTRATION.¹

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"Out of the fullness of the heart the mouth speaketh," and sometimes the fullness of knowledge of existing conditions and the vision of what these conditions might be, are an incentive to speech. From a ten years' experience and observation of fitting household arts students into practice fields in dietary administration, certain theories which are herein presented in the form of an outline have crystallized into a definite conception of methods which will bring results superior to those now obtained.

Until recently it has been relatively difficult to obtain an opportunity for work in any practice field whatsoever for the newly graduated household arts student, so that almost any such opportunity was prized regardless of what the ideal practice field, had it existed, might have afforded. In fact the ideal practice field seems not to have existed even in imagination. The students were translated to gain their experience from the class room and laboratory, where the largest quantities handled were seldom more than those for the average private household, to the hospital household numbering from 500 to 1000 persons, where the quantities were so large that the former methods of handling did not apply and many of the smaller recipes refused to work. The adjustment of the student dietitian to this strange environment sometimes involved the entire institution in a temporary giddiness. That many such students obtained something of value from the experience and developed into efficient dietitians is as much to the credit of the native qualities of the student as to the nature and opportunities of the practice field.

Again, students asked permission to work for experience in restaurants and lunch rooms. After trial in some of the large, more complex, and highly organized of these, the students were pronounced entirely impractical, and permission for further experience was with-

¹ Read by title at the Administration Section of the American Home Economics Association, Lake Placid, N. Y., June, 1912.

drawn. Various charges were made as to the inefficiency of domestic science and household arts graduates. After a time the training schools reached the conclusion that the pursuit of the existing courses did not entirely fit the student for administrative work, and that what was called "inefficiency" in the practice field was really lack of preparation. Thereupon courses bearing directly on the problems of administrative work were introduced for those preparing for institutional work.

With the recognition of the claim on the curriculum made by the institution, came the recognition of the need of a practice field where the student might gain first hand knowledge of the problems of institutional work without assuming unwarranted responsibility for their handling. In the larger schools the first thought has been to make use of the opportunities nearest at hand—the school residence dining hall, the school lunch room, or both—first as a means of demonstration, and second as an opportunity for the student to gain actual experience. We hear from one place and another that this work has been "successful," that "students are doing the actual work" in such and such places. Upon investigation it appears that a student taking any active part in the lunch room or dining room is regarded as the "successful" feature. Whether the student's experience there has clarified her ideas, defined and strengthened her method, formed her judgment in the management of food choice, purchase, preparation and service; whether the material gain to her in power is worth in dollars and cents what she has put into it of time, energy, and tuition fees; whether the department in which she has obtained this experience has been able to maintain an efficiency standard while sidetracking its administrative force into teaching lines; whether under such circumstances it was even possible for the student to learn good methods, to say nothing of the best; indeed whether the student was prepared even to observe correctly—are questions not considered as factors in the "success" of the plan.

Indeed, judged by these last standards very little of this work has been more than partially successful. In various professions and lines of business where "experience" under direction is a part of the required preparation for independent work, the student is admitted only to the departments or divisions where his experience will be economically "successful." He must be able to render service worth at least as much to the concern as the time required by the head of the department to supervise and instruct him. The firm would lose by any

less business-like arrangement, and the student would lose by an experience gained in a scheme not wholly business-like and therefore not fitting him for advancement.

This is the point apparently lost to view in the present methods of giving practical experience in dietary administration to our household arts students. No practice can be thoroughly advantageous to a student if obtained under conditions which are not economical, not practical, not approximate to what she will find in the field of work to which she aspires. Her method of work will be of doubtful value if acquired in an organization run at a financial loss in order to give her "experience," and in which the entire scheme of management is adapted to student capacity. On the other hand the experience that will count for efficiency will be that in which the student has marched lock-step with other employees in the efficient and purely commercial field; where she has been the equivalent of one whole employee; where she has carried the work of one "station," and not where from two to five students are required to do the work of one employee. Cases are not unknown where, in spite of the students' work abolishing the necessity of a pay-roll, the school has had to meet a deficit in the department for the sake of student experience. It is hardly reasonable to expect that a student experienced in such methods as these should cope otherwise than unsuccessfully after her graduation with the situation confronting her as manager of a dining room or lunch room.

It may be asked: "How is a student direct from the class room, to perform the work of a trained and experienced employee and escape the demoralizing experience of representing one-half or one-third of an employee?" The reply is first of all to avoid the present method of leaping from the class room to the highly complex system of food administration of the large hospital, the large restaurant, and large school dining hall. For the solution of our difficulty we must recall the prototype of the practice method and also fall back upon an educational principle, both of which have been submerged of late in misdirected efforts toward opening practical work.

The prototype of the present practice field was the apprentice field of older days and combined several excellent features which could be followed with advantage in our present system. First, the field was not too large nor too complex for the comprehension of the apprentice; second, the work did not involve the leap from the known to the absolutely unknown with no experience to guide; third, the period

of training was made sufficiently long to insure the skill which comes only from the repetition of a process; fourth, the period of training was sufficiently long to insure reimbursement of the master through the acquired skill of the apprentice; and fifth, the privilege of practicing the trade depended upon the efficiency thus acquired. These features made apprenticeship favorable alike to the apprentice, to the master, and to the public. And furthermore the plan demonstrates the application of the educational principle referred to, that of progress from the known to the unknown by successive steps.

Having gotten away from this last principle, by ignoring the law of association, in transplanting our students directly from the class room to the highly organized field which bears little relation to any of their past experiences, we are confronted by the necessity of making good to the student the knowledge which should have intervened and should have come through experience. To do this the practice student must be tutored and coached constantly, in fact, be told what she is seeing (for otherwise she may not see what she has before her); she must be pushed and pulled through all the mental processes that should develop naturally with experience. Carried to its logical conclusion this course of action would necessitate a tutor at the elbow of the student the entire time. Granting the absurdity of the conception, even if this be done, the results are obtained at a cost out of all proportion to what the average student gains from such a course. It is well to remember that it is the average student who must be considered in these plans, for the exceptional student will, as she always has, make the most of her opportunities. It is, however, too much to expect a profession to consist exclusively of exceptional people.

If now we reform our conception of the practice field, using the skeleton afforded by the best of the mediaeval apprentice method and letting its growth and power come from natural development according to the law of association, we then have an efficient system of so complete and natural a plan as to be almost self-operating—the graded system of practice fields. Three distinct general grades are easily recognizable as essential to complete experience in dietary administration, and within these there may be further subdivisions and grading of work according to the maturity of the pupil and the number of pupils to be handled at one time. The first grade naturally consists of the first step beyond the class room and laboratory experience under teaching supervision.

In the class room or laboratory the student has learned the principles underlying all groups of processes in the selection, preparation, and service of food to groups varying from the size of the average household to such larger groups as the school kitchen laboratories can serve, generally not over fifty. Each student has had probably one practice lesson in each station, as vegetable cook, as meat cook, as dessert cook, as waitress, as kitchen assistant, as pantry assistant, etc. She has had instruction in marketing, has visited markets, has done a little marketing for classes, has had some drill in estimating quantities used as a basis for placing large orders. But four essentially important features in preparation for independent work are necessarily omitted in the class room and must be provided at this juncture: first, the opportunity for correlating all the processes previously practiced, including accounting, for the sake of the managerial concept of responsibility and organization; second, the opportunity for repetition of processes until skill results; third, practice in handling quantities of foods many times as large as class room experiences could permit, developing a new set of methods and proportions applicable only to large quantities; fourth, the opportunity to adapt and apply the increased knowledge to meet requirements in some specific field as the hospital, or the commercial lunch room or school dining-hall.

It should be axiomatic that if the practice student is to gain much from experience in any or all of these processes, she must be able to work sympathetically in whatever field she finds her opportunity and to this end experience in the first of the four essential features supplies a valuable foundation for those that follow. Logically, the first grade of practice field work is found in the very small institution where the quantities to be handled do not exceed those in the past experience of the student, where in fact the detail of all processes required will come well within her comprehension, but where she will have the responsibility of planning and correlating all the work, and of bringing all processes to the conclusion required by imposed standards, such as obtaining satisfactory meals for a given group for a prescribed sum, or making all expenses and 6 per cent profit. This sort of experience is properly found in a small tea-room managed in connection with the school dining-hall, or the small hospital of not more than fifty beds. The special diet kitchen of the large hospital also gives opportunity for this work. In such places the newly graduated household arts student could be really useful and find the work within her com-

prehension, and her mind free to study the development of the work, not paralyzed by its magnitude as happens in the large field attempted at this stage.

Two months of such work will suffice to demonstrate whether the student possesses any managerial ability, whether her field for future work will best be limited in scope to work of the first grade, or whether her capacity justifies the pursuit of advanced and extended opportunities. On these lines should the decision be made to afford the student an opportunity for work in the second grade.

A perception of the responsibilities of the manager, the necessity for organization, discipline, and watchfulness of detail, being obtained in the first grade, the student is in a position to gain most from the opportunity to "fit into" a larger field, where she may work side by side with the meat cook, pastry cook, baker, waitresses, and other employees, first, as assistant, then gradually assuming full responsibility in succeeding rôles as repetition of processes gives her the requisite skill and judgment. The length of time spent in this, the second grade, must depend upon three things: first, previous experience which may shorten any of the apprenticeships; second, the aptitude of the student; and third, the purpose of her training. It is conceivable that the time might vary from three months to three years according to the variations in conditions.

The work of this, the second grade, should be done in an institution numbering not less than three hundred residents. The school lunch room and college residence hall furnish excellent fields. The point to be emphasized is that the student's work must stand the commercial test; that she must be able to turn out work of the same grade as the regular employee; and that she be not advanced until she has met absolutely all the requirements of each station. In meeting this test she has finally covered the four fundamental essential features of training which the class room cannot afford, emphasizing the one involving the repetition of processes which the superficial student finds tiresome and does not recognize as valuable. Thus in this grade it is possible to weed out those whose sincerity of purpose, courage and perseverance do not justify the opportunity for advancement to the third grade, nor the faith that they will ultimately qualify as thoroughly capable, competent food administrators.

In the third grade the student steps into the relation of assistant to the manager of a large field such as the hospital dietary department or the college dining hall. There under direction she has opportu-

nities for practice and observation in selecting and buying food and other supplies, for planning the menus and the work for employees, for demonstrating her skill in achieving results and her judgment in adapting her work to conditions. At this step she may be worth a small salary or her maintenance, if not at first possibly after a month or two of such experience. This grade should not occupy less than three months in one institution and might profitably be extended to a full year divided among two or three institutions of different types or under widely different conditions. Such experience would furnish the best possible preparation for independent work.

This practice course, which adds at least a year to the period of preparation for the field of dietary administration, affords advantages to the training school, to the student, to the professional dietitian, to the institutional management employing a dietitian, and to the public served by such institutions. The advantage to the school which is preparing the student will be three-fold: the cost of supervision of the practice work is reduced to a minimum as the responsibilities fall naturally upon the administrative heads of the practice fields; the weeding out of ineffectual material, as the students qualify for advancement from grade to grade, insures the direction of teaching energy into profitable channels and does not hold out to the student the false hope of ultimate success where there can be no success; and not the least of the advantage to the school is the result that its graduates will be known for thorough and excellent work. To the student untried by experience and hoping to be truly valuable in her new field of work, it gives justifiable courage and confidence to know that she will not be advised to undertake a task beyond her capacity, and that she will be prepared to lift and carry a burden and will not impose an added one in whatever place she is called upon to serve. Once launched in the work as a professional dietitian, she will realize power in her work and "success" in the ease with which she carries responsibility. The greatest possible comfort to the sincere mind will lie in the knowledge of the value of her services which are really worth what is paid for them.

All this is of priceless value to the institution management. The security in the assurance that the woman who is recommended as dietary administrator knows all the details of the work and that round pegs will not be called upon to fill square holes, would seem to the harassed superintendent the dawn of a wonderful era. Of late the institution has been threatened with the swinging of the pendulum

in the other direction, the one extreme having been the danger of exploiting the services of the apprenticed nurse, the other now being the danger of exploiting and disorganizing the institution for the sake of giving experience to inadequately prepared student dietitians. When the practice work of the student dietitian or food administrator is graded as the practice work of the student nurse now is, the prejudice against the dietitian which now exists in some quarters will disappear, and the deserved confidence of the institution and the public be won.

A "closed system" which would ultimately destroy itself is not advocated. In the above, principles rather than system have been emphasized and the plan herein outlined is an example of the principles in action. The plan itself is capable of endless adaptation and development according to varying conditions and should be used only in accordance with the principles presented.

Adding a year to the period of preparation for professional work is a course of action never greeted with enthusiasm by the candidates for certificates of proficiency, but wisely conducted the final result of such a course is to raise the professional standing of those who have completed the additional year. In this case the fact that students pursuing the additional work herein outlined are in a position to earn a large part, if not all, of their expenses during the year, should serve as an incentive for spending the additional time and for achieving the higher qualifications.

THE DIET KITCHEN.¹

MABEL C. LITTLE.

The modern diet kitchen, an important part of every well planned and well organized hospital, has reached its present degree of efficiency gradually. The need for such a kitchen was first recognized by some leaders in the profession of nursing, and their suggestions have been successfully carried out by graduates of schools of domestic science and household administration.

The purpose of the diet kitchen is two-fold—educational and practical, furnishing as it does an important part of the education of the nurse, and at the same time materially aiding the hospital and physician in caring for the needs of the patients. On account of the growing importance of the study of preventive medicine and diet, and the increasing number of diseases in which carefully planned dietaries are substituted for medicine, the careful supervision of the prescribed dietaries and instruction in dietetics to the nurses are assuming a more important place in the hospital. In many of our hospitals the diet kitchen is an afterthought, and consequently occupies the only available space, making the best of existing conditions. In others, although it was planned for, it was an experiment, there being no precedent to follow.

It seems that today the diet kitchen has passed the experimental stage, and that now we should establish standards for the judging of diet kitchens so that the builders of institutions may be aided not only in avoiding mistakes, but in building kitchens in which the most efficient service may be attained. If kitchens are poorly planned the hospital will suffer, for even the best employees can not do their best work under poor conditions.

What would be an ideal diet kitchen? The ideal diet kitchen would be one in which the nurses receive an excellent practical training, fitting them for their professional career, and one in which the food for the patients is prepared and served in the best possible way.

¹ Read by title at the Administration Section of the American Home Economics Association, Lake Placid, N. Y., June, 1912.

It is the aim to outline, briefly, some suggestions for the solution of this problem, applicable to a large institution, but adaptable also to smaller ones. Many modern hospitals are built on the pavilion plan, or, if in any other style, the floors reserved for private patients are usually one above the other, with the kitchens and diet kitchens on either the top floor or in the basement, the floors being connected by elevators and dumb-waiters. There are advantages and disadvantages to both of these plans. If the kitchen is in the basement it is convenient for the delivery of supplies and disposal of garbage, but it lacks sunshine and ventilation, and the odors rise through the building. A kitchen on the top floor is light and well ventilated, there are no odors to disturb the patients, but the arrangements for the delivery of supplies and disposal of garbage are not convenient, and the noise from the machinery in the kitchens prevents the use of the floor below for patients. This might be used for operating rooms, sterilizing or gauze rooms, or dormitories for servants. The modern fireproof buildings seem to transmit noise and vibrations more readily than those of other construction, but no other kind is considered for a modern hospital.

In this paper the general kitchen problems are left out, and the feeding of the private patients and the preparation of the extra diets for the public wards are the only questions considered.

The kitchen floor, whether in the basement or top floor, should be divided into several rooms: First, a kitchen with range, steam kettle, vegetable steamers and tables, where a professional cook, either man or woman, will prepare the meats, vegetables, and soups for the private patients; second, adjoining the kitchen should be the diet kitchen, containing a range, sink, cupboards and utensils; here the nurses will prepare the broths, custards, salads, desserts and all special orders and special diets; third, a serving room, adjoining the kitchen and diet kitchen, fitted out with steam tables, coffee urns, dish warmers, tray racks, dish washer, cupboards for dishes, a small refrigerator, sinks, broilers and toaster, and drawers for linen and silver; two or three dumb-waiters, the number depending upon the size of the institution, should connect the serving-room with the floors to be served; fourth, a milk room supplied with sterilizers and all necessary apparatus, where the feedings for the infants may be prepared with aseptic precautions; fifth, a refrigerator room with cold storage compartments for the use of both kitchens, with one compartment reserved for the milk; in this room should be an ice crusher and an ice cream

freezer with motor; sixth, a dining-room for the employees; seventh, three lavatories, one for the nurses and two for employees.

The nurse's work in the diet kitchen should be made progressive, so that during the time of service here she may learn to do all of the different kinds of work, beginning with the simpler things: the making of broth, beef balls, beef juice, dressing of squabs, and so on, then the salads and desserts. After this she can serve the trays in the serving-room, where the chef carves the meat, and the trays having been set up and marked, the cold food salads and butter can be taken from the refrigerator, the hot food from the steam table on heated dishes, and the tray sent by the dumb-waiter and served at once to the patient.

Economy of food is one of the greatest advantages of this method of serving, for every time food is divided and put into receptacles, a certain amount is lost and the food becomes a few degrees colder. This method will do away with the eating by servants and nurses of food intended for the patients. There will be great saving particularly in butter, bread, coffee, and cream, as well as in the cooked food, for no matter how carefully the amounts are measured from the kitchen there is always some difference in this amount and the amount served, and it is difficult to have this food always returned to the kitchen. If the trays are returned to the kitchen the waste can be noted and to a certain extent regulated. The labor of distributing supplies through the hospital would be materially lessened, although each floor must keep a small supply of milk, broth, eggs, oranges, and lemons in a refrigerator for the nourishments. The noise of the handling of dishes, if taken from the floor, will add much to the comfort of the patients in the rooms adjoining the serving pantry.

The dietitian will be able to supervise the serving of the food and be sure that it is served as planned, avoiding the mistakes sometimes made.

In some hospitals the nurses prepare all the food for the private patients, but will the trained nurses ever be called on professionally to cook roasts for fifty or sixty people? From the patient's point of view can we expect the meat and vegetables to be well cooked when the nurses are continually changing, and as many of them have had no previous experience in cooking, can we expect them to become experts in a few weeks? The dietitian has many other things to watch beside the cooking of meat, and knowing that the success in cooking meat, our most expensive food, depends largely upon judgment and experience, is it sensible to entrust this to inexperienced

people? The French do not consider a chef competent to cook meat until he has served a three or more years' apprenticeship.

The orders of squabs, broilers, steaks, and chops should be cooked by the nurse in the diet kitchen or serving-room.

The silver required by an up-to-date hospital is expensive, and this can receive much better care and is less liable to be lost if it all returns to the one serving-room. The method of serving trays from a general serving-room has been done for many years in many of the Catholic hospitals of the country.

The room set aside for the preparation of the infant's food should be kept as spotless as an operating room, with everything in the room cleanable. Here, the technique of the operating room should be observed: one nurse in sterile cap and gown, hands scrubbed with an antiseptic solution, with sterile sheets covering the tables and using nothing but sterile utensils and bottles for mixing the feedings. Another nurse in cap and gown should assist by pouring the milk from the cans and bottles. This work should be most carefully superintended by the dietitian, that no slips occur in the technique or errors in the formulae.

The planning of the menus for the private patients is one of the dietitian's duties. These will vary with the season, location, and general policy of the hospital.

The lectures to the nurses must be, in large part, theoretical, in order to cover the ground necessary to pass the required examinations of the State Registration Board.

Some hospitals have class-rooms arranged with individual gas burners as in school kitchens, where cooking lessons can be given. This is good but does not seem a necessity, for usually arrangements can be made so that these practical lessons may be given in the diet kitchen at some time when it is not in use. The equipment necessary for a diet kitchen depends entirely upon the amount and kind of work to be done in the kitchen.

THE HOUSEKEEPER DIETITIAN IN THE HOSPITAL FIELD.¹

MARY A. LINDSLEY.

The housekeeping dietitian has a very broad and interesting field. Her work may cover the entire housekeeping department or it may only include certain parts of it. If it does cover the entire field it is one of the most important positions in the household. It is an ideal profession for a woman, one in which she can do her best work, and if she puts her personality and enthusiasm into it can make it show as much individuality as she could in her own home. She is the one person in the hospital who can give it atmosphere an of home.

Her work will embrace the managing of the laundry and linen room, the cleaning and care of the nurses' home, general kitchen, employing the help, and perhaps the buying of the supplies needed for these departments. In fact it will embrace just as much of housekeeping as she is willing to do and capable of handling. And here should be emphasized the importance of every woman handling all the work for which she is mentally and physically capable, and not hesitating because it isn't the work she was engaged to do. The hospital needs women who are willing to shoulder its burdens.

In order to handle this work the housekeeping dietitian will need a kitchen matron, head laundress, a competent woman in the linen room, and, depending on the size of her hospital, an assistant, someone in each place who will care for the details and on whom she can depend, and in whom she can instill the importance of feeling that the work is entirely theirs and that not an article be wasted that can possibly be utilized.

The cleanliness is one thing that needs constant looking after and to which the dietitian must give her personal attention. In the general kitchen and in the buying of its supplies will be the most absorbing work. The making of the menus for the different people of the household; regulating the kitchen-help schedules so that each one is a

¹ Presented at the Lake Placid Meeting of the Administration Section of the American Home Economics Association, June, 1912.

part of the machinery; giving out the supplies and checking their quantities, so that the dietitian knows where the supplies are used and for what; seeing that the food leaves the general kitchen in such condition that it cannot be criticised and in proper quantities, these are some of the duties of the housekeeping dietitian.

The employees look to the dietitian and housekeeper to take a personal interest in their meals, and it more than pays when they know that someone is looking after their food, and attending to their wants.

The nurses, one of the most important factors in the hospital, who are expected to give their best mentally and physically, cannot do so if they do not have wholesome, seasonable, and appetizing food, and above all, never know what they are going to have. It seems as though the hospital should pay more attention to the nurses' food, and that the dietitian is the one who must do this. The house-staff and supervisors get the best meals but they also greatly appreciate a little personal interest. Thus the dietitian has her entire family, as well as patients, and if she has ward, semi-ward, and private patients she has a great variety of meals to put out. And here comes the advantage in buying her own supplies. She knows the cost, the season, the cost of labor, and she can give a greater variety, a more seasonable meal, when she only is responsible for the cost and output. It is every dietitian's pride to have a low per capita rate, but she must keep in mind the high cost of food, and the rights of each member of the institution.

The work of the laundry is closely connected with that of the linen rooms. The buying of linen, the prices paid, the quality purchased, depend all upon the use and care given it. Most articles of linen in the hospital are used once and then laundered so that the wear in washing is greater than that from actual use. No one realizes this sooner than the purchaser. Consequently it is necessary for her to know the method employed in the washing. If the laundry is run as a separate department, the laundress wants to maintain it at as low a cost as possible, which may result in larger linen bills. When you realize that a towel, for instance, is used at its longest twenty minutes, and yet it takes one hour and a quarter for the laundry to put it out in its quickest time, the necessity for a good soap, and the avoiding of acids are most important. It may raise the maintenance of the laundry, but it will pay in the end.

The quality of the sheet and the laundering of it are of as great importance to the patient as the food. Nothing is more annoying than

badly washed and mangled bedding. It also gives the housekeeper as keen pleasure to know her linen is well made, mended and washed as it does to know her food is as nearly perfect as possible.

In engaging the employees, scheduling the work so that each one is independent of the other and each one having a list of work, is a great advantage in reducing the payroll and in getting better results. Employees like to feel that they are a part of the great machinery, and that they, by careful use of supplies increase their value to the hospital. When the housekeeper can get her employees to take this attitude she has not only helped the individual but her institution.

Buying the supplies takes a great deal of time; seeing different representatives, quotations over the phone, and frequently a visit to the markets, all are necessary. The salesman who calls takes time, but it is an advantage to see him for he always gives some information that is valuable, if not in buying his goods in purchasing from someone else. And if he calls several times and does not get an interview, he is apt to carry away the impression that there is some graft system. For this very reason, it seems an advantage to buy from several different firms dealing in the same line of goods. It is impossible for the woman filling such a position to have regular hours, and she must be big enough to realize that the work of managing the housekeeping department is an absorbing one, and that when emergencies arise it is her duty and pleasure to adjust them. Calls on her time will come early and late, and it is the woman who is ready to meet these who is in demand. This does not mean that she should have no time, but her position is one of the most wearing in the institution. She will have every complaint on food, laundry, cleaning, inefficient help, and other complaints which do not belong to her. Therefore it is necessary that she get away from it at times and have complete rest.

THE COÖPERATION OF DIETITIAN AND PHYSICIAN.¹

E. GRACE McCULLOUGH.

It is in somewhat of a reminiscent mood that this paper is presented.

The topic carries back exactly six years. In June, 1906, it was my great privilege to make a short journey with Mrs. Richards. The few days spent together were most helpful to me. Time and again have stray portions of our conversations returned with fuller emphasis, almost prophetic. Yet none more so than one question, out of which grew the short paper she later asked me to write for the next session of the Lake Placid Conference in September of the same year. The underlying thoughts embodied in that paper are not changed in the slightest. The sentences in regard to the dietitian which read, "She has a dignified standing"—"A changing yet brilliant future"—"The outlook tends toward specialization," are truer today by six years' test, than when they were first written.

We had been discussing the dietitian, her fitness for the work, her relative place in the institution and her future—then a silence—suddenly Mrs. Richards raised her head in that quick, alert manner which her friends remember so well, and said, "What are we to do with our domestic science graduates? They cannot all be teachers." "No, Mrs. Richards," was my reply, "nor can they all be dietitians."

If the same question were put to me today, the answer would be almost as brief, and certainly as emphatic—No; they cannot all be dietitians, and very few should be *hospital* dietitians.

Wherefore the qualifying of my reply? There are two fundamental reasons: First, The work of the dietary department in the hospital differs in several ways from that in any other institution. The food purchased and served must be reckoned for the sick as well as those in normal health. The ill are to be fed up to health, the well kept there; if possible, all are to be kept contented and happy. The teaching and training of the nurses in dietetics must be along special lines in addition to a general course. There must be maintained a definite,

¹ Presented at the Lake Placid Meeting of the Administration Section of the American Home Economics Association, June, 1912.

unequivocal position and a steady advance in the entire field. The standard should be continuously raised by the best practical methods which mean good financing and frictionless institutional machinery.

A great part of the hospital's dietary department is concerned with ward work, whether the large open wards or the private ones. There are three phases of this ward work to be carefully supervised, the daily three meals, the regulation list of diets, and the special diets for which work every hospital dietitian should be conscientiously selected. This brings us to the second factor, the individual equation, or the fitness for the work, which counts so tremendously that it might be considered the hospital dietitian's largest asset. She can not grasp the full scope of the work at once. The road is narrow and long; never is it by ways of pleasantness where all the paths are peace. The work requires an enormous amount of enthusiasm to carry through the first twelve months, and this enthusiasm must be a personal distinctive force, the conscious power of doing the work the world needs.

The dietitian, at her best, is but a small part of large institutional machinery. To be paradoxical, she must lose herself in the work and at the same time find herself the recognized head of her department; where these two connect or divide, enters that God-given attribute, *tact*. The amount or variety of the work is not here exaggerated, nor are any of the requirements exceeded.

Ever and anon the question comes, What are the duties of a hospital dietitian? I might be facetious and say, All of her own, and some of everyone's else. And again, What must she know? There is absolutely no limit to the amount of knowledge she is expected to carry around, so systematically pigeon-holed within gray matter as to be on call for every questioner. She must meet the superintendent, the engineer, the butcher and baker, intelligently, and decide quickly for her department; pass upon the proper slaughtering of a pig; be asked in consultation regarding the prevention of the wholesale slaughtering of the innocent; know every stage of vegetable life from seed to seed again; be conversant with every phase of food, from the psychology of the intake to the bacteriology of the outgo, plus the chemistry for each change; she must compute the percentage of the money invested when reckoning the percentage of energy in the food involved; she must be as familiar with all the details of a laboratory as with the kitchens and able to hold her own with any department or line of work which touches the dietary department. Any—here let us pause—for out of this “any” appears the main point of divergence for the hospital

dietitian's work, making it distinct from all other. This point becomes the point of contact with the medical profession. What the dietitian makes out of this point, depends entirely upon herself. Trifles light as air determine the rise to full privilege, or rather fellowship, the post of honor, as first feeding—aid to the medical case after diagnosis—meaning, as the title selected for this paper—the coöperation of the dietitian and physician.

But, before we leave the worker and proceed to the details, we feel there must be sounded an additional note of warning to the prospective hospital dietitian. She must know, and those who train should be convinced, that specializing toward the pathological branch of the work, expecting only feeding in disease, that bedside and clinical duty are to be the chief duties, omitting all the practical courses which round out the student as a general dietitian, that such specializing will be absolutely futile. She must make good in every detail of the entire dietary department before she is recognized by a member of the visiting staff. All this is disillusioning. The trying out process frequently means being ignored.

There are two invisible barriers never to be overlooked by the dietetic aspirant which separate her from the consummation of the great desire to be called upon for "special service." The first is the jealously guarded "rights of precedence," and the second is the unwritten law of "professional courtesy." Should the dietitian take upon herself the initiative to break through these walls, she has committed a breach of professional etiquette, never condoned—having over-stepped, she is thereafter viewed with distrust. Could a list of "don't's" be handed to the youthful domestic science graduate as a warning against unknown rocks and reefs, a deal of unnecessary friction might be avoided.

To those enlisted in the ranks for hospital feeding this is a twice told tale and all too true, while for those entering the field it may seem too graphic and not true. Much depends upon the point of view. The dietitian works out her own salvation. We attract the conditions of our daily life by our attributes of mind, under seemingly purposeless acts there is always the strong current of personal inclination.

The main question at issue is, how to bring about the coöperation between such a "close corporation" as exists and the dietitian. Please do not consider me frivolous, if I say in many cases it appears to be just blind luck; the open sesame in too many instances, has hinged upon incidents that are not most pertinent to the gravity of the situ-

ation; in one instance, a goitre; in another, a good-as-dead Greek woman whose soul was more starved than her body; in another the grip of a strong right hand upon the trouser leg of a would-be suicide; and the honest "I do not know" of a senior interne; answered by "Well, go find out" from the "*great man*," have brought the dietitian within the inner shrine.

Many dietitians find the attitude of the "house staff" takes on color from the personal relations existing between herself and individual members which grow out of the fact that she also supplies their daily bread and it is not to their liking. It is not a cheerful atmosphere when some like pease pudding hot and others wish it cold. This pettiness, which although only a local condition, is extremely uncomfortable and discouraging to that particular dietitian, but will not have any general bearing upon the future coöperation as a whole.

Dietotherapy has come to the fore within the past twenty years, along with hydrotherapy and psychotherapy. They are not new, but history repeating itself, and anyone tracing through the centuries the rise and decadence of the various specialties used as "aids" in the course of the science of medicine, will find it most interesting. Realizing that the feeding by science is not new, the tremendous advance in all the sciences makes the present day methods certainly a new departure. The up-to-date physician is ever ready to avail himself of all the "aids" which are for the good, the rapid convalescence and life of his patients. Energy and time are limited and it is a physical impossibility to personally attend to details. The ancient practitioner who rolled all his pills and brewed his own elixirs, passed with the stage coach and the "old gray nag." Then came a drug prescription to the near-by drug store. Now the physician writes a prescription to the "hydro," one for the masseur, another for the psychologist, and why not for the dietist? It is no longer a question, but a fact: Food prescriptions are written with the same formality as one for the pharmacy; usually headed by the diagnosis in the upper right corner and ending with the number of calories (if desired) in the lower left corner, the quantities of fat, carbohydrate and protein designated in total grams for twenty-four hours, the entire fluid content estimated in litres.

These prescriptions reach the dietitian, who sees that they are divided into the required number of feedings, calculated, properly prepared, and promptly delivered from the diet laboratory. This is the first step, recognizing and appropriating the diet kitchen already

installed, which had heretofore been used only for teaching nurses the rudiments of invalid cookery and for making tit-bits for favored patients.

The wave of infant-feeding raged furiously and swept two continents. From the wreckage of numerous opinions, formulae, etc., there has emerged the child specialist, the milk laboratory and the special formula for the special infant. This formula is also written out after the manner of the other prescriptions and not numbered to fit the card but to suit the case. Pasteurization continues to see-saw—for and against—as the “Service” changes. The coöperation at this point is definite, the dietitian intelligently answers questions and assists in computing split proteids and determining coefficients—because few doctors care to do it and some internes do not know how.

The great white plague can be called the entering wedge to more cordial relationship than anticipated. Tuberculosis was the first disease which wanted, asked, and received all possible coöperation. During the flood-tide of “high protein” feeding which taxed the metabolism of the patients, the patience of the nurses and the ingenuity of the dietitian to the utmost, to say nothing of the strain upon the money bags of the state, city and individual, the physician and dietitian worked in accord, and when the feeding pendulum swung to the opposite extreme, the starvation diet rested heaviest upon her. When the rational middle mark was reached, the number of feeding cases had so increased, several hours each day were required to make bedside rounds.

Chronologically, following tuberculosis, the “true dietetic diseases” claimed unusual attention and careful selection of the food. Doctors everywhere are divided upon the subject. This or that “cure” supplants another without a fair trial, for diabetes, nephritis, other kidney troubles, and gastro-intestinal disturbances. The dietitian must certainly keep a middle line, yet know the details of each one, and her best judgment is called into play to supply the proper number of feedings daily in an acceptable manner, from a diet prescription which has no more food value sometimes than the paper on which it is written. With these diseases she is asked to suggest—and this is the highest coöperation thus far reached. Convalescence is gradually being shortened by different feeding during acute stages of disease and by careful fuel feeding after it is arrested. Calories are estimated up or down to the normal weight for the size of the patient. The feeding up of a case does not mean simply extra eggs and a few glasses of milk, the

feeding down not merely a reduction in bulk, but of intelligent elimination.

Having reached the present situation, the outlook for tomorrow suggests two alluring vistas for the dietitian: The first, she must continue to specialize and eventually will occupy a position as head with oversight of the executive division of the dietary department, a position similar to those of the pathologist, chemist and pharmacist, on call and for consultation; the other, that of dietist at large, with office hours and a round of visits to patients coöperating with the private physician. I may not see it, nor you, but it is coming.

Rather than summarize the foregoing, I will quote directly from Dr. William F. Boos' admirable paper, published in the *Boston Medical and Surgical Journal*, 1910:

Dietitians have come to be as necessary in a modern hospital as the visiting medical staff itself. The demand for this profession must be met. At present it is a woman's work, waiting for her and offering fine inducements to her. If there are no women available—and I fear there are not many—it will not be long, in these days of over-crowded professions, before men will add dietetics to the list of callings for men, and women may realize too late what an opportunity they have lost, in part at least.

THE RELATION OF HOUSEHOLD ADMINISTRATION TO PUBLIC UTILITIES.¹

MARTHA BENSLEY BRUÈRE.

So far, the Conference seems to have agreed upon one thing, that practically all the problems of household administration resolve themselves into problems of service.

Not long ago the dean of women of one of the western colleges which has a large domestic science department told me that she was afraid that we were making domestic science a fad;—paying so much attention to it that it was getting in the way of culture. Now, from the very beginning of time we have devoted attention to domestic science for the sole and only reason that it should get *out* of the way of culture.

Mrs. Bruère evidently considers it high time that our women should realize their relation to the larger world of business, to awaken to their power as consumers over all departments of public service. This power depends on their ability to work together. It would be most interesting to discuss the methods of reaching these ends and we shall be glad to print correspondence from our readers on the subject.—EDITOR.

¹ Presented at the Lake Placid meeting of the Administration Section of the American Home Economics Association June 1912.

That was why the problem of service originally came in. The domestic servant got the work of the household out of the way of her mistress' culture.

I have just been visiting in a little Indiana town within a stone's throw of the Wabash River. It has 526 inhabitants and there is not a servant in the place. It has, however, an academy with a domestic science department, the equipment of which I was permitted to inspect. That department is based on the use of the coal stove, and owns one of the best, most complete, most energetic coal stoves I have ever seen. It has no fireless cooker, no power-run washing machine or bread mixer, no equipment of any sort which could not be put into immediate practical use in this town which has neither electricity, gas nor water power, although the Wabash River, many horse power strong, runs by in idleness. The domestic science school has accepted absolutely the limits of the town and bases its teaching, not on what it would be possible for the town to have, but on the things of which it is already in possession. There is no course in this school which even aims to teach students how to make that Wabash River into the common servant of the place. As a result both of the domestic science instruction in the academy, and of the naturally industrious and painstaking disposition of the women, the homes of that town are swept and garnished, the clothes of its people are spotless and the food on its tables is abundant and perfectly cooked. The women are good housewives. But the streets are unlit and unsprinkled, the library of the academy, which is open to the public, is practically unused, and the women's club is inert. How should they be otherwise? The need of this perfect housekeeping and the taste for it take up practically all the time of the women. There are no servants for them to rely on and the management of their homes stands between them and culture, while the Wabash River, which might free them for the civic work of getting the town streets lit and sprinkled, attending the women's club and reading the library books, has never been made to do its duty.

A few weeks earlier I had visited a Wisconsin town of about the same size which was a great contrast to this Indiana one.

"Do you have electricity in your house?" I asked one of the women at the women's club.

"Of course," she said.

"Don't you find it very expensive?" I asked her.

"Well, it does cost a good deal now, but when we get our plant

paid for, it will be cheaper than any fuel that we could have—oh, yes, we use it for cooking and lighting and running the washing machine. You see, the town has put in the plant and it costs now almost as much as you would have to pay in the city, but that is only until we get it paid for.”

The women of this town presented a large and energetic delegation to the joint meeting of the Wisconsin women's clubs. They reported that their town had lectures on civics, a new depot and schoolhouse and were evidently taking an active interest in the village government. They had time! They had absolutely refused to accept the limits of their town. They had made a public utility their domestic servant and had thus put housework out of the way of culture.

It was in only a few places that I have found domestic science teachers recognizing their responsibility, not only to teach their pupils how to use the materials and equipment already at hand, but to provide themselves with the best that science had devised—teachers who recognize that it is part of housework to create and manage the public utilities which have taken the place of domestic servants. This problem of the management of public utilities by the housewife is not alone a country problem or a small town problem. It is even more a city problem, for in the large cities, although the public utilities exist, they are put out of the reach of most of the people by their high charges. Take electricity for cooking, for instance. The public schools of Chicago do not teach cooking on the electric stove, not because Chicago is without electric current, but because it costs ten cents a kilowatt hour, a price which puts it beyond the reach of ninety-nine out of a hundred housewives in the city. And yet the people own through the Sanitary District of Chicago the drainage canal which has 125,000 horse power going to waste. The children are not taught how they can control this power which belongs to the people, how they can turn it into electric current and use it in the city kitchens at a price which makes this best fuel of all what it really is—the cheapest thing for household use. In the case of Chicago, the public utility servant is already created. It is not controlled.

In this situation, which exists in most of the large cities, there are three things to do. First, the one that is taught by the schools and the magazines and which amounts practically to a boycott; that is, we are told that we must use some cheap substitute for the thing we want. The magazines give recipes which will take the place of things cooked with eggs. The schools advocate milkless puddings and the

creamless oatmeal, and tell us how to make near-cake, and what can be substituted for meat. In general, they teach the pernicious doctrine of getting along with less instead of finding ways to get more. They advocate a sort of inverted evolution, which if persisted in, would send us like crabs backward along the slow path of civilization. The second method is even worse. It is the method of doing the work of the public utility for it, saving its bones and muscles and tired back, as it were. I saw not long ago a magazine advocating the home making of soap, because it was cheaper. There is hardly a woman's page in the country that does not advocate home-made garments because they can be made at a less price than the factory will furnish them. The *New York Times* a few days ago printed a laudatory article about the graduating class of a Broome Street grammar school, all of whom had made their graduating dresses at a cost not to exceed \$1 apiece. The *Times* went on lightly to say that these dresses would have cost \$30 in a store. Well, in that case, the *Times* probably did not know. The dresses might have cost \$5 or \$6 in a store. Now, far be it from me to lessen the advantage from the standpoint of culture, of these girls learning how to sew and cut and make their own clothes. It is probably just as great a development of the mind as to learn the tables of weights and measures, and it also gives them a small amount of manual dexterity which is valuable. But would it not be more worth while to teach them how to find out why the readymade dress costs five or six times as much as the one they make themselves? If they are paying their servants, the manufacturers, too high a price, ought they not to know it? That is the third and best way to control the public utilities—to cut down the wages we pay them. And the thing is no dream, because it has actually been done.

Take the Consolidated Gas Company of New York City that used to charge, some five or six years ago, \$1 per 1000 feet of gas. I was living in the New York ghetto when the campaign for 80 cent gas was on. Twenty cents difference per 1000 feet of gas in the ghetto where there is no storage for coal and where practically all cooking and heating operations depend on gas, is a very serious thing. The candidates of all the different political parties used to speak from soap boxes under our window, and whenever one of them said 80 cent gas, the crowd that blocked the streets would cheer, while the candidate who did not mention it was listened to in silence, and as a result, the 80 cent gas ordinance was put through. The Company immediately

set up the claim that they could not manufacture and sell gas at 80 cents, and that a law requiring them to do so was confiscatory, and therefore unconstitutional. It was carried up to the Supreme Court in the case of *Wilcox vs. The Consolidated Gas Company*, and the Supreme Court found that 80-cent gas would yield a 6 per cent return on the investment, and decided that 6 per cent was not confiscatory.

This case was important, not because it fixed the price of gas for that city, but because it established the principle that the people have a right to determine the pay they will give their servants, the public utilities.

Boston has put in practically the same ruling in adopting its "sliding scale" which fixes the dividend its gas monopoly can pay at 7 per cent, but allows them an increase of 1 per cent on its dividends for every 5 cent reduction in the price of gas. The regulation of the street car fares in Cleveland was a recognition of the same principle.

Of course it may be argued that only a few of the things with which the housewife directly deals are public utilities, on the basis that to be a public utility a company must have a franchise to use public property. But Judge Waite of the United States Supreme Court has enlarged the significance of the public utility by saying: "Property does become clothed with a public interest when used in a manner to make it of public consequence and affect the community at large. When one devotes his property to a use in which the public has an interest, he grants to the public an interest in that use and must submit to be controlled by the public for the common good."

Under this decision, would not the milk combine, the beef combine, the National Biscuit Company, and all the various purveyors of food and clothing and fuel and building material, be considered public utilities, and therefore servants of the home and to be controlled by the house wife?

It seems to me that any domestic science teaching which takes as a basis of calculation the existing price or rarity of a thing and considers it as final, is missing its best chance, for if, as the previous speakers have said, the problem of Home Economics is ultimately a problem of service, then it is the function of the house wife to control this service, whether it is a service by human beings, by machines or by public utilities. The underlying idea of domestic science teaching should be not only to make the best use of what we can have under existing conditions, but to show how we can change existing conditions so that we can have what we need.

SCIENTIFIC MANAGEMENT IN THE HOUSEHOLD.¹

FRANK B. GILBRETH.

Housekeeping is an industry which embraces a variety of activities and, like all other industries, it can be well managed or badly managed. The saving of strength of the housekeeper, the finding of time for rest and recreation, as well as the right use of money expended for the household, depend in a large measure upon the skill of the housekeeper and her efficiency as a manager and as a worker. It would seem that principles that have proved of use in the scientific management of commercial industries might have an application to the business of housekeeping. In this paper, the practices as applied to commercial industries, are set forth with the hope that housekeepers and teachers of home economics may be able to apply them at least in some measure to the solution of their problems.

PRINCIPLES OF SCIENTIFIC MANAGEMENT.

There is undoubtedly a considerable waste of time, energy, and money, resulting from imperfect organization, or from the absence of organization, of the work of the household. Application of some of the principles of scientific management would tend to reduce and even to eliminate this waste.

In all organized work there are two plans of management. The first of these represents what is variously known as military or traditional management. Under this plan, each man is responsible to one man only above him, and is in charge of all below him. Thus, it is the custom for any man to come in contact with only one man above him, the line of authority being single and direct. Traditional management has been used for centuries in military organizations, and has also been used many times in religious organizations and political organizations. The division is by men, by grades of men rather than by functions. This plan is illustrated by figure 1.

Figure 2 represents functional or scientific management, or what would be called, but for objections by Dr. Taylor, the Taylor system of

¹ Presented at the Lake Placid Meeting of the Administration Section of the American Home Economics Association, June, 1912.

management. Here the division is by functions. The first functional division is the separation of the planning from the performing. Graphically, this separation is represented by the horizontal line. All functions above this line are of the planning, all functions below this line are of the performing. Note the functions shown on this chart, namely four functions in the planning and four functions in the performing. Note also their relation to each other, and to the individual worker.

This chart shows one such worker represented by the lowest circle. There could be no objection to representing each individual worker by such a circle, but the relation of each such worker to those over him is exactly the same. Hence, the lowest circle is typical.

It will be noted that the worker receives orders directly from eight different foremen. It has been said that no man can serve two mas-

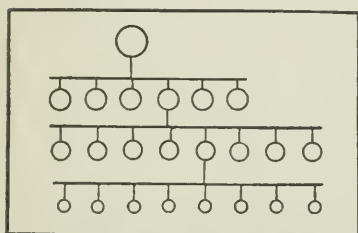


FIG. 1—Diagram illustrating the principle of Traditional or Military Management.

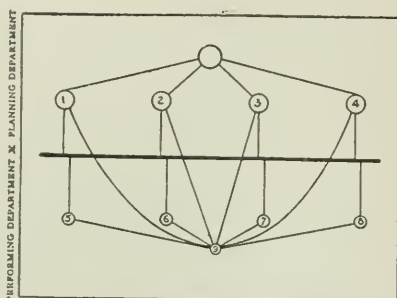


FIG. 2—Diagram illustrating the principle of Functional or Scientific Management.

ters, and this is true even in scientific management. But under scientific management the worker does not serve eight masters, nor eight functional foremen, but, on the other hand, he receives help from eight different foremen or teachers. In this way, his case is not very different from that of the student who receives instruction from eight different professors, in eight different studies.

The four functions in the planning department are represented by (1) route clerk and order of work clerk, (2) instruction card clerk, (3) time and cost clerk, and (4) disciplinarian.

Although in this presentation each function is represented by a person, each function may be represented by any number of individuals, or one individual may perform several functions, according to the kind of work, and the conditions necessary to eliminate all possible waste. Each one of these four men of the four functions in the planning

department, is supreme in his respective function. All deal directly with the worker, and all deal directly with the four functional foremen who are in the performing department.

Of the performing department we have four functions represented by (5) gang boss, (6) speed boss, (7) repair boss, and (8) inspector.

These functions, like those of the planning department, are represented by as many men as the nature and amount of work justifies, or two or more functions may be represented by one individual. All such representatives deal, as the chart indicates, directly both with all the individuals in the planning department, and with each individual worker.

The duties of the man handling each function will now be explained.

ROUTE CLERK.

The duty of the route clerk is to plan in advance the path of each piece of material, worked and unworked, as it passes through the shop or as it is handled by each and every member of the organization who has anything to do with it. He is to decide the three dimensions of the path, and the route that the material is to pass through, whether it is to go to the stores or into temporary storage piles, or directly through the shop as fast as it can be moved. His function is not simply to look after the details of the moving, but broadly, to determine the entire transportation career of the material. For example, in building operations, he would determine where the car was to be placed to be unloaded, where the material was to be unloaded, when it was to be moved into the building, and exactly what path it would follow across the floor, up the elevators, and to its final resting place.

Often the route clerk is able to greatly simplify the path of the materials, especially on large orders, by a rearrangement or routing of the machinery. The route clerk's duties, also, oftentimes consist of demanding a new path, that is, ordering that machinery not used be removed, so that he can route his material by a more economical method. After he has determined the exact path by which the material shall be routed, he embodies his conclusions in route charts and route sheets; these illustrate his orders graphically, and are worked out in detail by the instruction card department.

THE INSTRUCTION CARD CLERK.

It must not be supposed that the instruction card function consists wholly of the work of actually writing out the instruction cards. This is the name of the function in general, and this function may be handled by several men of different capacity in the instruction card function, that is to say, the department may be divided into subfunctions. It is the duty of this function to work out in detail, that is to say, to devise and construct an instruction card for each element of the route sheets and route charts. The instruction card department must furnish in the greatest detail possible, such directions as will show two different classes of men their duties, namely:

(a) The worker, who must know how to perform the particular work shown on the instruction card.

(b) The functional foreman in the performing department, who must know exactly what he is to see that the worker does perform, and exactly what he is to teach the worker in order that he may so perform his work as to conform to the instruction card and to satisfy the man who made out the card.

THE TIME AND COST CLERK.

After the worker has performed his work, a return of the time that it took him to do his work, together with its cost, goes to the time and cost clerk, who figures out the payroll, the bonuses, and the cost of performing each task.

THE DISCIPLINARIAN.

He is the man who handles all matters in the entire organization pertaining to disciplining. He must be a broad gauge man who is able to keep peace in the organization; to anticipate and prevent many disagreements and misunderstandings before they actually occur, and to arbitrate or judge fairly such disagreements as actually take place.

THE GANG BOSS.

The gang boss is not the type of man represented by the "bucko mate" of the vessel of former days, who boasted that he could lick any man in the entire crew, and often did so for no other cause than to prove his words. He is now a man who can teach the worker the methods shown on the instruction card. His duty is to see that the

worker preforms the work required exactly as called for, and of the prescribed quality shown on the instruction card. In order to get his best work and to enlist his zeal, it is usually necessary to pay him a bonus for each and every man under him who in turn earns his bonus, and a double bonus if every man in his gang earns the bonus. For example, suppose the gang boss received \$3.00 per day, and had twenty men working under him, he would be paid, say, in round numbers, approximately 10 cents apiece for each man under him who received his bonus; and, if all twenty of the men received their bonus, he would receive a double bonus of 20 cents apiece for the entire gang.

It is evident that such a plan of management as this will bring out coöperation as would no other plan, and it may be stated emphatically that only the hearty coöperation of the men will bring out good results from Scientific Management and the economies that it is possible to effect by it.

SPEED BOSS.

The speed boss, regardless of the popular impression as to his duties, does not speed up the men, in fact he has very little to do with speeding the men. His duty is to see that the machinery moves at the exact speed called for on the instruction card. Evidently some one speed is more desirable than any other; for example, the speed of a buzz planer or a circular saw is very dangerous when it is too slow, while on the other hand, the speed of a fly-wheel of an engine is very dangerous when it is too fast. The one that is the most desirable and safe is the speed that the instruction card man attempts to set on the instruction card, and it is the duty of the speed boss to see that the machinery runs at all times at exactly the prescribed speed. He not only shows the worker how he can make his machine run at the speed called for, but, if there is a question as to its being possible to run at this speed, he must be prepared to teach the worker by doing the work himself, or provide a man who can comply with the requirements of the instruction card.

REPAIR BOSS.

The next function is that of the repair boss. His duties consist principally of carrying out repairs and overhauls, such as are called for on instruction cards that are given to him at regular, predetermined intervals. In this way breakdowns, as far as possible, are avoided. The repair boss, however, must be a resourceful man, prepared, in case of emergency, to jump in and repair any such breakdown

as may occur, even in the absence of precise directions or an instruction card.

INSPECTOR.

His work is decidedly different from that of the inspector under the old type of management; for example, his inspection must result in constructive criticism, not destructive criticism. It is his duty to see that the material is rescued when it is not handled, or worked exactly as called for on the instruction card.

Many times, under traditional management, the inspector comes around after the work is done, condemns it, and walks away, leaving it to others to see that the work is taken down, and perhaps, carted from the premises. Under Scientific Management the inspector is required to stand near the worker when he is handling a new piece of work for the first time, in order to see that he thoroughly understands his work as it progresses. Thus the material is not spoiled. If the worker has a task of, say, fifty pieces, the inspector inspects the first piece most carefully, to make sure that he is satisfied that the worker knows exactly what he is to do, how he is to do it, and the quality prescribed by the instruction card.

THE WORKMAN.

As for the individual worker, it will be seen that he receives not only an instruction card telling him what he is to do, how he is to do it, how fast he is expected to do it, the prescribed quality with which the work must be done, and how much pay over and above his usual day's wages he will surely get if he does all that is called for on his instruction card, but also, he receives personal teaching. The gang boss acts as his teacher constantly; the speed boss he can call on at all times to assist him with the speed; the repair boss coöperates with him to see that his machine is constantly kept in such repair that he can earn his bonus, and the inspector will also teach him at any time, and show him wherein he is making a deviation from the quality called for. Moreover, the functional foremen in the planning department are ready, at call, to explain their instructions. Thus he has every help that is possible to enable him to earn the exceptionally high wages that are offered for Scientific Management. He is assured of the "square deal" from the foremen who are over him, and he always has the same opportunity to appeal to the disciplinarian, in case he is not being well treated, that a foreman would have in case the worker

was not doing his work as well as he could do it, or was not trying to coöperate with the other workers.

Having shown the principal functions of Scientific Management and their relation to each other, and to the individual worker, Motion Study will now be considered.

The three most obvious economies to be obtained by Motion Study would be to use (1) the fewest motions, (2) the shortest motions, and (3) the least fatiguing motions; but these, however, are but a small part of the list of savings that could be obtained.

For example, in one organization, for over twenty years, a certain man's duties consisted of doing work that required his hands to be within 6 inches of the floor on which he stood, practically all day, except when he was resting; this man was probably about 6 feet 6 inches tall. On the other hand, in the storage department, a very short man was piling cases in a pile about 7 feet high. Here was clearly a failure to select the man best adapted to the kind of work to be performed.

Motion Study is a part of the function of the planning department. It is here necessary to go back a little way and see what it is that the instruction card man is supposed to do. His duty first of all is to devise a way that is the most economical and the least wasteful of all ways that can be devised, and the nearer he can get to perfection the better he is in his function. The nearer his method is to perfection, the more scientifically can rates be set. It must be remembered that under Scientific Management the rate is never cut. Any manager who is familiar with the evil by-products of cutting the rate on piece work will readily understand the tremendous benefits that accrue from any system where the rates are so fixed that not only the rate need never be cut, but that there is no incentive to ever cut the rate. Cutting the rate results in scientific loafing, which is quite the opposite of hearty coöperation, and without hearty coöperation high wages to the workman and low production costs to the employer are impossible.

Motion Study is so intimately related to time study that it is quite difficult to specify exactly where one begins and the other leaves off. Perhaps the best way to describe it would be to say that Motion Study is for the purpose of seeing that the process is right, and time study is for the purpose of determining how long each element of the process will take, and how much time must be devoted to rest for overcoming fatigue.

Motion Study theoretically is supposed to furnish measurable units for time study, but the units are so small that they have not, until recently, been timeable. It is expected that a mechanical device for this purpose will be on the market very soon, capable of timing the motions of a workman very accurately.

Teaching of right motions should precede teaching of quality of output. All thought of quality should be neglected temporarily for the sake of acquiring great precision of right motions. Hitherto, failure to recognize this fact was due to lack of knowledge of the right motions. Ordinary stereoscopic and motion picture photographs now permit the recognition, separation, and measurement of the various motions with great accuracy, and the results are quicker teaching, automaticity of motions, habits of right motions, and less fatigue and less percentages of fatigue. These all permit much faster motions.

There are a great many other reasons why motions should be standardized, and if they are standardized, it goes without saying that the motions should be the right motions. One of the reasons for taking great care in standardizing motions is that it reduces enormously the amount of time study that must be taken, and time study is at best an expensive and somewhat tedious process. It is more important to have a standard method for each process early, than to have the best possible methods; however, it is, of course, desirable that the standard process shall be built up from the best known motions at the time that it is standardized.

There are many variables that affect the motions, and one or more of these may make it necessary or advisable to completely eliminate motions which were considered essential before due consideration was given to the variables. The list of variables here given, by no means complete, may preferably be divided into three classes: (1) the variables of the worker; (2) the variables of the tools, equipment, appliances; (3) the variables of the motion itself.

VARIABLES OF THE WORKER.

Anatomy, brawn, contentment, creed, earning power, experience, fatigue, habits, health, mode of living, nutrition, size, skill, temperament, training.

VARIABLES OF THE MOTION.

Acceleration, automaticity, combination with other motions and sequence, cost, direction, effectiveness, foot-pounds of work accomplished, length, necessity, path, play for position, speed.

VARIABLES OF THE SURROUNDING EQUIPMENT AND TOOLS.

Appliance, clothes, colors, entertainment, music, reading, heating, cooling, ventilation, lighting, quality of material, reward and punishment, size of unit moved, special fatigue-eliminating devices, surroundings, tools, union rules, weight of unit moved.

The object of Motion Study is to discover perfection and to perpetuate it automatically.

Scientific Management has been extremely slow in making an advance in the industries and the principal reason for this is that the scientific managers have been obliged to train their own men. There is no school at the present time that has sent out young men who were familiar with even the vocabulary of Scientific Management.

After determination of the right motions, the right times for the motions, and grouping them into cycles of elements, of subdivisions, of processes, the next step is determination of the amount of rest required for overcoming fatigue. The result is the standard task for the standard man.

It is necessary here to explain the terms "standard man," "first-class man," and "given man." While motions and the time of motion have been determined by observation of the best men procurable, it is to be expected that other men will be obtained who will be as good as the best man picked out for this purpose. The first-class man is the man who is best adapted to this particular work; that is to say, the best man adapted to do this work continually and thrive. The first-class men are obtained from the given men. Some find that they cannot do the work, and either become discouraged or are assigned to other work before they get discouraged. Many people think that the hard task makes an unwarrantable hardship upon the worker, but this is not so, for Scientific Management contemplates having each man work at the highest class of work for which he is mentally and physically and by experience able to work at continuously and thrive. The interdependence of all the men from the individual workman to the highest man in the planning department is so noticeable that it is necessary that only those men are picked out to do the work who are capable of doing it so as not to delay those that follow in a dependent sequence of operation. If an inefficient man who could not be depended upon to do a certain predetermined piece of work were permitted to work at a place where he failed to perform his task day after day, he would prevent all those men who follow him from earning high wages;

therefore it would be unfair to the other men to permit any man to work at any task which he could not perform continuously and efficiently.

Now that there is so much literature on the subject of Scientific Management, why is it a fact that the progress of the study has been so remarkably slow? The answer to this question is that many people who are thoroughly familiar with the duties of the men and the various functions are not familiar with the pitfalls that are ever present in its installation. The entire scheme is dependent upon the hearty coöperation of everybody in the organization, and workmen everywhere have been deceived so many times in the past that they are naturally suspicious that this Scientific Management is nothing more nor less than a new fraudulent confidence game presented to them in a more deceptive form than they have ever seen, and they believe that it is for their best interests to smother it while it is still young.

On the other hand, there never has been a case where Scientific Management has been properly installed, that all the workmen did not realize that it was much better for them than any form of management that they had ever seen. Now that there have been many successful demonstrations of Scientific Management where the workers receive much higher wages than ever before and where the costs of production are lower than ever experienced by manufacturers before, it seems extremely unfortunate that the terrible wastes that are going on where Scientific Management is not in operation should continue, and it is hoped that universities and other institutions of learning will consider seriously the study of Scientific Management, not only for the education of the young men who are going out into the world as engineers, but also with the idea of establishing permanent stations for the collection of Motion Study and time study data, in coöperation with the universities and with the national and state governments.

The problem is too great for any one firm, corporation, or college; in fact, this is work in which all English speaking nations should unite as they have already done in investigations of matters pertaining to medicine, agriculture, and the animal industries. Much good would come from the establishment of an international bureau for the study, collection, cataloguing and dissemination of data relating to Scientific Management, through the amelioration of the condition of workmen of all countries, and the elimination of unnecessary waste.

REPORT OF THE COMMITTEE ON UNIFORM ACCOUNTING FOR INSTITUTIONS.¹

The membership of this committee was intended to include representatives of various types of institutions and various aspects of institutional work. The committee has had a progressive, rather than a constant life, for the membership has been enlarged as various phases of the work were attempted and advice upon them became necessary. Besides the chairman, the following, in the order of service, have had a part in the work of the committee: Miss Olive Davis, director of halls of residence, Wellesley College; Dr. Frederic A. Washburn, Jr., superintendent of the Massachusetts General Hospital, Boston; Dr. Roland H. Harris, member of the board of trustees of the Battle Creek Sanitarium; Mr. John L. Taylor, assistant comptroller of Harvard University, and treasurer of the Symmes (Arlington, Mass.) Hospital; Miss Florence Ruth Corbett, dietitian at Teachers College, Columbia University, and consulting dietitian for institutions; Mr. Edgar A. Fisher, purchasing agent of Earlham College.

This gives the committee, counting some members in more than one capacity when their work has more than one aspect for the purposes of the committee, four representatives of hospitals, one representative of a sanitarium, four representatives of the food-and-shelter aspect of colleges, three representatives of the teaching aspect of colleges, and two accountants. Mr. Melvil Dewey of the Lake Placid Club has given the committee much help, particularly in the consideration of problems of clubs and hostels.

A complete plan for uniform accounting would require a large volume for exposition and illustration. So many differences occur in institutions that doubtless fifty modifications of any uniform plan would be required even for the institutions represented in this conference. Uniformity of detail is not really uniformity at all, for details must differ where conditions differ; otherwise one cannot know that conditions are different, and the accounts will misrepresent the facts. What we mean by uniformity is uniformity of method—so that the same situation will be disclosed by the same figures, and differences of situation

¹ Presented at the Lake Placid Meeting of the Administration Section of the American Home Economics Association, June, 1912.

will be disclosed by differences—and concomitant differences—of figures.

For these reasons your committee has thought wise to recommend the adoption of certain principles that it believes essential to any sound accounting—whether for immediate costs, for studies of efficiency, or for purposes of comparison, either within an institution or between institutions.

These principles may be stated concisely as follows:

1. Capital accounts, so-called, should be kept for all permanent property and equipment—and that means a capital account for each department of the institution. The purpose of these accounts is to show not what the property is worth today for sale purposes, but what it represents in the way of cost, or investment, for the institution. These accounts indicate how much of the funds entrusted to the institution have been and are now locked up in permanent form. It is assumed that either the property has been maintained at its original efficiency or depreciation has been subtracted from the original cost and charged as operating cost, or expense.

If in any institution the records of cost of permanent equipment have not been preserved, a fair valuation of the property for use purposes (not for *sale* purposes unless early sale is contemplated) should be made. This valuation should have regard to three things—the cost of new equipment to do the same or substitute work, the probable life (or period of usefulness) of the old equipment, and the comparative efficiency of the new and the old. The important fact is to recognize the principle of valuation, for several things hinge upon it—as will appear in the discussion of other accounts.

The only objection to this plan is the fear that jealous citizens may agitate for taxation of tax-exempt institutions, or philanthropically-minded persons may grow tight-fisted if they learn how much property institutions hold. The committee believes that even under such circumstances the figures should be kept on the books, but it may not be wisdom to publish them. On the other hand, a campaign of education may sometimes be profitably conducted by showing how big an investment is necessary to make possible the conduct of a proper public service. Greater contributions may result.

Directly related to these capital accounts are four, sometimes, five, operating or expense accounts, and these should be kept separate for each department. These give us the following:

2. A maintenance account should be kept for each department.

This should show all expenditures for repairs and replacements to keep the property in its original efficiency for service. The sum of these is an operating cost. If the property has been more than maintained, so that it has greater efficiency, or longer life, than before, the cost of the excess of service-value may be charged to the capital account of the department.

If, on the other hand, repairs and replacements have not kept the property up to its old efficiency, this exhaustion of value is still one of the operating costs, or expenses, and must be counted. So far as cost, or expense, is concerned, it makes no difference whether one has replaced the wear and tear or not. The cost is the wear and tear itself. For convenience, we call the cost of restored wear and tear "maintenance," and actual (not restored) wear and tear we call "depreciation." A valuation, as already indicated for the capital account, assists in the annual answer to the question, has the property been maintained? This is to be determined for a department as a whole, and not for each item of property—table leg, or sheet, or instrument. If the property and equipment of the department as a whole are as efficient (looking into the future, i.e., at durability, as well as at the present) as they were at the beginning of the period for which the books were made up, the property has been maintained and no depreciation need be considered. The cost of that maintenance is the charge to maintenance account. If, for an absurd but simple example, a building were so constructed that one-tenth of the cost were in the roof, one-tenth in each of three floors, one-tenth in each of four walls, etc., and it were good for ten years only, and you replaced the roof one year (though the rest depreciated), and a floor another year (though the rest depreciated), and so on, there would be no actual depreciation. You might go on in this way for a thousand years, always with a building as good as it was at the end of the tenth year, with correct showing of values and of costs; for though each year nine-tenths were allowed to depreciate, the tenth-tenth would be entirely replaced and charged to maintenance; and that would be as good, and indeed practically far better, than replacing one-tenth of the walls and of the floors, and of the roof, each year.

3. A depreciation account should be kept for each department; for, as just indicated, when depreciation has occurred, it must be counted as a cost; otherwise a superintendent or manager who exhausts the equipment will be showing low costs. Depreciation must also be deducted from the capital value of the property.

4. An interest account is desirable for each department. Each

department should be charged interest on its equipment. This sounds like paying the left pocket from the right—like playing with figures. Yet only so can we know whether equipment is profitable. Expensive equipment may be put in to save labor; but no institution has a plethora of funds, and money spent for permanent equipment cannot be used for current accomplishment. If departments are not charged interest on their equipment, they are left with temptation to save a dollar in wages at the expense of two dollars in interest—for wages always show and the interest (in that case) will be hidden. Even if money is plentiful, neglect to charge interest will represent conditions unfairly in a comparison with other institutions unless actually the same proportional investment has been made in the various departments.

Obviously a valuation, as suggested for the capital account, is necessary for the calculation of interest on equipment. The rate of interest must be determined by local conditions. For our purposes, the important things are merely two: first, the recognition of the principle of interest as a department cost; second, a statement, in the published report, of the amount of interest charged to each department and of the *rate used*.

5. Departments should be charged for insurance on their property for the same reason that they should be charged interest. The use of property involves the cost of insuring that property, and a department unwilling to bear the expense should not be granted the right to purchase.

6. If taxes are paid, they should be charged to each department in the ratio of the value of the property held.

Obviously only when valuations of property are preserved on the books can one apportion insurance and taxes to the various departments.

So far we have been concerned only with direct costs—costs for which we know or can easily tell how much belongs to each department. Besides those just considered are the obvious items of salaries, supplies, express, stationery, printing, etc.

Your committee recommends that at least four joint costs—or costs common to several departments—be distributed among the departments concerned. These follow:

7. Food—including supplies, cooking, and serving—should be charged to departments separately. Food cost should be distributed among the departments and should be charged to each on such basis

as in each particular case will show the actual cost to the institution of food consumed by employees "living in." Only when this is done can one tell whether "living in" is cheaper than "living out," and only then can one compare institutions operating under different conditions.

When different types of dietary are served to different classes of guests, inmates, or students, the food costs should be kept separate for each.

8. The cost of dormitory or sleeping provision should be determined for each department. This should be charged to the departments on the basis of space occupied and service rendered for sleeping accommodations for its employees. The chief items so to be distributed are rent, heat, light, laundry, and care of rooms.

9. The cost of laundry should be charged to each department. This is meant to cover both laundry used by the department itself, as operating-room laundry in a hospital, and laundry of employees of the department.

10. Department housing, or space-cost, should be charged to each department. This includes rent, light, heat, cleaning, etc., for the quarters used by the department for the conduct of its business.

Your committee recommends that in some cases two items be subdivided within departments, as follows:

11. The subdivision of pay roll in some departments. When several classes of employees, serving different functions and receiving various rates of wages or salaries, are employed in any department, their salaries should be subdivided in such fashion as to make available statistical comparisons or cost figures for the different classes of work. In a hospital, for example, wages of graduate nurses, of nurses in training, and of orderlies, though all in the group of cost of care of patients, should be separately reported.

12. Subdivision of supplies in certain departments. These should be divided into classes whenever such subdivision will give statistical information of value. Such information is the relative consumption of meat, of fish, of dairy products, of cereals, etc., under different conditions, and the cost of dietetic substitutes for any of these.

The above twelve recommendations are made by unanimous vote of the members of the committee present at this conference. Dr. Washburn,* who was unable to be here, has expressed personally to me his approval of the principles involved; but he has not had opportunity to see them expressed in this form. Miss Davis* has been abroad

*Since the meeting, both Dr. Washburn and Miss Davis have given the report their full endorsement.

for some time, and has not seen this formulation, but has expressed her approval of most, if not all, of the principles.

Respectfully submitted,

for the Committee

WILLIAM MORSE COLE, *Chairman.*

Forms were then shown indicating how it is possible to keep record of the board cost, laundry cost, etc., chargeable to the various departments without burdening either the clerical force or the books unduly. The special expense ledger was roughly described. All the forms and accounts, with discussion of their purpose and use, required to carry out the recommendations of the committee, are in preparation for the printers' hands, and will be published in book form. For these, however, the chairman is alone responsible, for the committee confined itself to the general principles and was not able to extend its activities to cover the vast field of details; nor is it possible to print them here.

In actual practice, the effort to keep all the details indicated in the report of the committee is not nearly so great as appears; for by means of a special expense ledger, which has been devised to accompany this plan, comparatively no more labor is required to keep a hundred accounts than is commonly put on twenty. The list of accounts below, therefore, is not really at all formidable. Since, moreover, each account has a mnemonic symbol, virtually an unmistakable short-hand equivalent, the task of making memoranda is slight. An outline of the accounts, with indication of their content, follows:

CAPITAL ACCOUNTS FOR INSTITUTION PROPERTY.

Administrative Equipment

Includes office equipment, such as desks, calculating machines, typewriters, telephone switchboards (if owned), etc.

Special Equipment

This is intended to cover one or several items according to circumstances.

In hospitals, *e.g.*, it may comprise seven items, each representing one line of activity—as operating room, dispensary, X-ray room, ambulance, etc.; in schools and colleges it may comprise items for class-room equipment, for libraries, for museums, for laboratories, etc.; in clubs and hostels, items for stable, for garage, for golf links, for tennis courts, for boats, etc.

Dormitory Equipment

This should include all equipment for bed rooms, dressing rooms, and other rooms such as private bath rooms used for private purposes. It should include not only furniture, but linen and crockery.

Table Equipment

This should include not only table furniture, but linen, crockery, and glassware—but not cooking equipment.

Household Equipment

This should include all general furniture in halls, reception rooms, public bath rooms, etc., and all equipment for general household use (not for cooking, serving, or laundry), such as vacuum cleaners.

Kitchen Equipment

This should include cost of ranges, steam tables, boilers (for cooking), ice chipping machines, potato parers, cooking utensils, etc.

Laundry Equipment**Steward's Equipment**

Storage refrigerators, scales, trucks, etc.

Machinery and Tools

This should include machinery and tools for general purposes, as boilers, engines, motors, ventilating fans, and mechanics' tools.

Building and Improvements

This is kept less as an indication of valuation than as an indication of the cost to the institution of its property in excess of the native value of the ground. Hence it should be debited for the cost of the "improvements," commonly so-called, including plumbing and steam fitting.

Sites and Grounds

This should register the cost of the land alone.

EXPENSE ACCOUNTS.

The letter in the left margin indicates the method of handling the account. G shows that the account represents a group of smaller accounts, and that normally entries are made to the group account only in lump sum, once a month. P (primary) indicates that entries to these accounts are made in the usual way; but by the provision of a special expense ledger and cash book, postings to these accounts can be reduced to a few each month. S (secondary) indicates that the account is used only as an ultimate destination for transfers, and that therefore entries are unlikely to be more than two or three a month.

*ADMINISTRATION.***G Administrative Service**

This group covers compensation for those engaged in general administration, and includes all services rendered for them in the way of compensation, such as board, rooms, and laundry. If any considerable part of the time of these persons is given to the work of any special department named below, the compensation should be apportioned.

P salaries of those employed in this service

S board of those employed in this service

S rooms of those employed in this service

S laundry of those employed in this service

This includes not only personal and room laundry of office employees living in the house, but office laundry—towels, for example.

G Office Expenses

P express

S housing

To this account is carried at monthly intervals the share of house expenses, such as fuel, lighting, water, care, etc., which is chargeable to this department.

- P stationery
 All stationery used, including pens, pencils, mucilage, blank books, etc., with the expense of printing—but not including stationery and printing for the treasurer's office, nor printing annual reports, notices of meetings, or other corporation printing.
- P postage
 Postage for office use only, not including postage on annual reports or on notices of corporation meetings.
- S interest
 Interest on Equipment of office
- S depreciation
 Depreciation of equipment of office
- P miscellaneous.
 This may include repairs and replacements of office equipment, and insurance on that equipment.
- G Telephone and Telegraph
- P salaries
 If the telephone is served by an employee who does other work also, the wages should be apportioned.
- S board
- S rooms
- S laundry
- S housing
- P miscellaneous
 This would include any messenger service for telephone and telegraph purposes.

DEPARTMENTS.

Special Departments

These may be few or many, as already indicated in the section on the capital accounts. In any case each should be subdivided for its various elements. In many departments, several salary accounts should be kept. The main subdivisions are likely to run as follows:

salaries
 board
 rooms
 laundry
 supplies
 express
 housing
 interest
 depreciation
 miscellaneous

G Housekeeping Department

- P wages of waitresses
- P wages of chambermaids
- P wages of other employees of this department not engaged in the preparation or care of food

- S board of waitresses
- S board of chambermaids
- S board of other employees of this department
- S rooms of waitresses
- S rooms of chambermaids
- S rooms of other employees of this department
- S laundry of waitresses
- S laundry of chamb rmaids
- S laundry of other employees of this department
- P supplies, table (not food)
 - replacements and repairs
- P supplies, dormitory
 - replacements and repairs
- P supplies, general
 - brooms, brushes, cleaning soap, etc., used in general housekeeping and not included elsewhere
- P freight
- S interest on table equipment
- S interest on dormitory equipment
- S interest on general equipment
- S depreciation of table equipment
- S depreciation of dormitory equipment
- S depreciation of general equipment
- G Kitchen Department
- P wages
- S board
- S rooms
- S laundry
- P supplies
 - This should cover not only soap and other supplies consumed in the kitchen, but replacement and repairs of kitchen utensils. It does not include any food or fuel.
- P fuel
 - To this account should be debited not only coal, gas, wood, etc., used in the kitchen, but also at convenient intervals a charge for power for steam at steam tables.
- P express
- S housing
- S interest
- S depreciation
- G Laundry Department
- P wages
- S board
- S rooms
- S laundry
- P supplies
 - Not only starch, wax, bleaching agents, soap, etc., but repairs and replacements of equipment, but not fuel.

P	fuel	Not only coal, gas, etc., but also a proportion of power when steam or electric power is used.
P	express	
S	housing	
S	interest	
S	depreciation	
P	outside laundry work	
G	Steward's Department ²	
P	salaries	This includes wages of all persons engaged in ordering, receiving, checking, storing, and issuing food as purchased, or the proportionate part of the wages of any persons engaged in part in this work.
S	board	
S	rooms	
S	laundry	
P	bread and pastry	Purchased outside.
P	cream and milk	Includes ice cream and cheese.
P	butter	
P	eggs	
P	fresh fruits	Includes care of fruit-bearing trees on the grounds.
P	canned fruits	
P	dried fruits	
P	fresh vegetables	Includes care of vegetable garden.
P	canned vegetables	
P	meats, fresh	
P	poultry, fresh	

² The discussion of this treatment of food supplies brought out many interesting particulars regarding the dietetic value of detailed reports of costs. The chairman of the committee, in his previous reports, had dwelt on the value of great subdivision of food costs, so that both the sort of diet furnished and the sort of prices paid might be indicated—for otherwise poor food and high prices might show the same costs as good food and low prices. The final judgment of the conference led to the acceptance of a subdivision of food costs more than twice as great as that which the committee, in spite of its desire for great subdivision, had believed possible to get the conference to adopt. The following classes were added (the foods entering these classes, of course, to be taken from the larger groups first indicated): flour; breakfast foods and other table cereals; condensed milk; cream; ice cream; cheese; storage eggs; egg powders and other egg preparations; fruits preserved; fruit juices; meats canned; meats smoked or dried; poultry canned; fish canned; fish pickled, smoked, or dried; sugar, molasses, syrups, and honey; nuts and nut products; tea and coffee. All cooking and table fats, including table oils, were put into the same account with butter.

- P fish, fresh
- P groceries and canned goods not enumerated
- P ice
- P miscellaneous
 - Supplies not food, and repairs and replacements of equipment.
- P express
- S housing
- S interest
- S depreciation

GENERAL HOUSE AND PROPERTY EXPENSES.

- P Taxes
 - On property occupied. Taxes on other property should be charged to the income of that property, as debits to the income account of that property, or, if the property does not produce income, to general income account.
- P Electric Lighting
- P Gas
- P Fuel, Oil, and Waste
- P Water
- P Ice
 - The amount is later distributed in part to the Steward's Department.
- S Power
 - This account should be charged for any power used for general house purposes, such as elevators and heating.
- P Rent
- P Maintenance of Buildings
 - To this account should be charged the cost of repairs only, but not repairs of plumbing and steam fitting. Additions and improvements should be charged to capital account.
- P Depreciation of Buildings
 - Depreciation of any improvements, including plumbing and steam fitting.
- P Care of Grounds
 - This includes cost of snow shoveling, lawn mowing, and care of flower beds.
- P Maintenance of Machinery and Tools
 - Replacements and repairs only. Additions should be charged to capital account.
- P Depreciation of Machinery and Tools
- P Maintenance of Plumbing and Steamfitting
- G Boiler Room Compensation
 - This account covers compensation of engineers and firemen. It should be credited for any work done by these men in care of grounds, repairs of buildings, etc., and the appropriate accounts should be debited.
- P wages
- S board
- S rooms
- S laundry

P Insurance

This should include only that portion of insurance that falls within the period. When insurance is paid for longer terms, the excess should be charged to prepaid insurance, and at proper intervals, as the insurance accrues, should be transferred to this account. To this account should be charged only insurance on property used by the institution. Insurance on property held as investment should be charged to the income of the investment, or to general income if the property bears no income

G Miscellaneous

P express

On any general house and property equipment

P miscellaneous

Items pertaining to house and property not elsewhere provided for and not administrative, professional, or departmental, should be charged here. If, for example, the institution provides local transportation for visitors and employees and does not collect enough from passengers to meet expenses, the deficit should be charged to this account.

S Interest B

On improvements—buildings and grounds

S Interest M

On machinery and tools.

WASTE ACCOUNTING SYSTEMS AND BASIC DIETARY RATION TABLES.¹

CHARLES S. PITCHER.

Why should a waste accounting system be used?

It checks over-issues of food to dining rooms.

It causes dining room employees to serve the food more carefully.

It prevents dining room employees from throwing an amazing amount of good food into the garbage cans, as is shown by tabulations made of the waste reports.

It shows which are well-managed kitchens and dining rooms and which are poorly-managed kitchens and dining rooms.

It gives kitchen and dining room employees an incentive to do good work, as the waste reports show which are the efficient employees and which are the poor ones, and makes it possible to commend the one and criticise the other.

It teaches the kitchen and dining room employees to handle food supplies in a careful and economical manner.

It is beneficial to the inmates of an institution because there is a minimum of waste in the kitchen and dining room operations, more care in cooking and serving, and, as the waste is lessened, more food to eat.

If the food supplies saved are not needed to improve the dietary of the inmates, there will be a reduced expenditure for food supplies.

The waste accounting system is better than the inspection of garbage cans. It insures the return from the dining rooms to the kitchens of good food which is left over from the meals. Under the old garbage-can inspection system this is usually thrown into the garbage, as it is some trouble for the dining room attendants to return it to the kitchens, and the kitchen staff do not encourage the return of such food as it is troublesome to care for and later on to utilize.

The weighing of the "waste not usable" (garbage) is a means of determining whether or not the inmates are receiving sufficient food.

¹ Read by title at the Administration Section of the American Home Economics Association, Lake Placid, N. Y., June, 1912.

The weighing of the "usable food which can be utilized by the kitchens" (good food) is an additional and very effective means of determining this question.

One who has inspected garbage-cans to any extent knows that often there are found meat, potatoes, puddings, bread, etc. which appear to have been good when they were thrown into the cans. The charge is frequently made that institution kitchens and dining rooms are so wasteful that a number of families could be provided for with the good food thrown away.

The inspection of garbage-cans depends upon the opinion formed by the person making the inspection, and as the time goes on this tends to grow lax and ineffective. The inspector depends solely upon what he can see. With the waste accounting system everything is separated as far as it can be, and weighed. This gives a complete record from which comparisons can be made of the waste from different kitchens.

The foregoing general discussion is based on a study of waste accounting carried on in a large public institution in New York State. Some details of this work follow.

The use of the waste accounting blanks was begun December 30, 1910, and for the purpose of illustrating the waste accounting system the following summaries of the reports of one of the kitchens will be given covering a period of six months beginning July 1, 1911. Similar summaries were prepared for other kitchens at the same institutions but are not included in this brief account of the work.

"A. B. Kitchen," as it is designated, cooks for about 1100 women, employees and patients. The food is sent out to eight small dining rooms of from 40 to 60 persons each, and two large dining rooms, one of 300 persons and the other of 350, the numbers changing from time to time.

The summaries of "A. B. Kitchen" which follow are particularly interesting on account of the large number of dining rooms supplied from this kitchen, the difference in size, and the fact that the food for eight of the dining rooms is taken to them with a horse and wagon.

The first table relates to the "usable food" returned by the dining rooms to the kitchen. The amount saved is amazing, for before the institution of the waste accounting system, these dining rooms were so remote that it was seldom that any usable food was ever returned.

Usable food which could be utilized, "A. B. Kitchen."

MONTH.	MEAT.	BONES.	BREAD.	CEREAL BREAKFAST FOOD.	POTATOES.	VEGE- TABLES.	RICE.	MISCEL- LANEOUS.
	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>
July.....	649	1,751	10	164	49			
August.....	619	1,458		260	100			26
September....	756	1,641½	41	450	298½			
October.....	855	1,871	5	412	347	50		
November.....	891	1,797	86	445	328	277	156	
December.....	1,067	1,629	292	357	471½	202	103	234
Total.....	4,837	10,147½	434	2,088	1,594	529	259	260
Monthly average...	806⅔	1,691¼	72⅓	348	265⅔	88⅔	43⅔	43⅓

The waste not usable at "A. B. Kitchen," which is shown in the following table, is high on account of the large number of small dining rooms and the fact that considerable liquids, tea, coffee, soups, milk from cereals, etc., were placed in the plate scraps. Since the period covered by this tabulation the dining rooms have reduced the weight of the plate scraps very much by giving closer attention to eliminating properly the liquids.

Waste not usable, "A. B. Kitchen."

MONTH.	PLATE SCRAPS.	BREAD.	POTA- TOES.	VEGE- TABLES.	FISH- BONES.	PUDDING AND CEREAL.	CORNCOBS FROM GREEN CORN.	CEREAL BREAKFAST FOOD
	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>	<i>lbs.</i>
July.....	8,081	2,258	1,678	262	124	377		
August.....	8,576	1,970	1,518	374	131	492	396	101
September....	7,992	2,050	1,286	355	127	357	851	
October.....	7,932	1,823	1,093	448	130	459		
November.....	8,242	1,758	1,003	746	96	451		
December.....	8,463	1,350	854	549	77	542		
Total.....	49,286	11,209	7,432	2,734	685	2,678	1,247	101
Monthly average...	8,214⅓	1,868⅓	1,238⅔	455⅔	114⅓	446⅓	207⅕	16⅕

After the waste accounting system had been in force in this institution for about half a year the kitchens were inspected. The lessened waste which was observed and the general improvement noted are directly ascribable to the waste accounting system.

The checking up of the waste reports had been purposely delayed as a test to see how well the chef, head cooks, etc., could operate the waste system without constant supervision on the part of the steward, and it was a satisfaction to find that they had been able to operate the system well in the old kitchen, and that the two new kitchens had been very successful in instituting and using it.

There seems to be a general feeling among the head cooks that the system is good, that it saves supplies and causes unserved food to be returned to the kitchens which formerly had been thrown into the garbage cans and lost. They think, also, that it causes more careful service of food in the dining rooms and that it aids the cooks in sending the proper amount of cooked food to the dining rooms.

The basic dietary ration tables are working in an excellent manner in all of the kitchens and are of great assistance in the proper distribution of supplies.

The variation of the waste returned from the dining rooms to the kitchens due to weather conditions is a matter which is hard to determine. The natural assumption would be that during warm weather there would be more waste than during cold weather, as a person's appetite is not supposed to be as good in summer as in colder weather. But during warm weather the inmates are more in the open air, which creates an appetite, and also such vegetables as lettuce, string beans, peas, radishes, spinach, etc., are in season and largely used. As these do not weigh very much and are relished by the patients, there is a tendency to offset any increase in waste due to warm weather, if such increase exists. During cold weather carrots, beets, turnips, cabbage, etc., are served as a second vegetable to a large extent, and as the inmates grow tired of them and as they are heavy in weight, the weight of the waste increases.

The total weight of the waste not usable at the kitchen designated as "Group 1 Kitchen" was as follows, for the months in 1911 covered by the reports: July, 7154 pounds; August, 7082 pounds + 2750 pounds corn cobs from green corn; September, 7000 pounds + 498 pounds corn cobs; October, 7574 pounds; November, 7876 pounds; and December, 7938 pounds.

"The proof of the pudding is in the eating" and from the recorded data it is clear that many hundred dollars worth of food supplies have been saved and turned back into the food ration of the institution.

The temperature from July to December, 1911, as reported by the District Weather Bureau at New York City is given below.

Monthly temperatures, July to December, 1911.

	MAXIMUM.	MINIMUM.	MEAN.
July.....	83.6°	68.4°	76.0°
August.....	78.5	65.0	71.8
September.....	73.5	59.6	66.6
October.....	61.7	49.6	55.6
November.....	48.5	34.4	41.4
December.....	45.5	32.9	39.2

The data quoted indicate that the waste food is greater during the colder months.

The nature of the food served at a meal has a large influence on the amount of waste which will be returned to a kitchen. For instance, when potatoes are served unpeeled in the large dining room and in the employees' dining room at "Group 1," the skins returned to the kitchen weigh from 50 to 60 pounds. When green corn on the cob was served to all of the dining rooms supplied by this kitchen on September 2, 1911, the cobs returned to the kitchen weighed 252 pounds.

At "C. D. Kitchen" cucumber skins weighed 27 pounds, muskmelon rinds 50 pounds and watermelon rinds 120 pounds. When pork is served, there is more waste owing to the fatness of the meat, than when beef, mutton, and veal are served.

The foregoing statements serve to call attention to some of the elements which must be considered with reference to the problem of dining room waste.

How to begin the use of the waste accounting system is a matter worth some special consideration.

In places where the system has not been used, it would be best to institute its use by first weighing all waste not usable, making one entry of it under "plate scraps" on the report blanks, and every few days as the kitchen and dining room employees grow accustomed to the new order of things to subdivide the waste until the system is in full operation. Great care should be given to determining the usable food which can be utilized by the kitchens, and this should be entered on the report blanks.

The meat should be trimmed from the bones returned from the dining rooms to the kitchens before the bones are placed in the stock kettle; unless this is done there will be a large waste of meat.

Some of the difficulties which may be met with in using the waste accounting system should be pointed out.

The weights may be faked as is true in other records. This can be prevented as the waste reports will bear certain "ear marks," and after it is found that it can be detected, the employees will stop such practices. It should be repeatedly impressed on everyone at frequent intervals, that the weighing must be accurately done and the reports carefully kept.

The dining room employees, unless reminded frequently, will allow liquids to get into the plate scraps, which increase the weight and cause it to appear that too much food is served on the plates. This can be prevented by two persons taking up the plate scraps, one dumping the liquids into a container, and the other dumping the solids into another container. Milk from cereals, tea, coffee, soups, water, etc., should not be put into the plate scraps, as plate scraps should consist only of the solids left on the plates, not separated and classified under other headings.

After the meat is carved in the dining rooms or kitchens, there is, particularly if a roast is served, a certain amount of meat left on the bones which is suitable for hash and stew meat. Unless care is exercised, however, this meat will not be saved for this purpose, but the bones, meat and all, will be put in the stock kettle, causing a loss in the food ration. The dining room employees may also throw good bread, cereals, meats, potatoes, puddings, etc., into the plate scraps, which can be prevented by the cooks in the kitchens as they discover this when the weighing is done.

When the dining rooms are remote from the kitchens, it is more difficult to operate the system, but the saving is greater from such dining rooms, as good food under the waste accounting system is saved, whereas under the garbage-can inspection system it is usually dumped into the cans. If the kitchen and dining room are located together, with a serving room between, the waste accounting system operates more easily, though the saving is not quite so large. Even under favorable conditions I have found large losses of good food occurring, due to the pressure of work incident to meal times, and unless there is some way of checking up, there are sure to be continual losses.

The frequent changing of dining room employees affects the dining room service materially, and to prevent this and to promote economy, they should receive as high wages as other employees. Where large

dining rooms are in operation there should be a well paid dining room attendant in charge, possessing ability in this line of work, as many times such an attendant's wages can be saved, and the dining room service improved also.

Much of the trouble experienced in dining room management is due to the feeling that dining room employees should not receive as much compensation as other employees. This is a wrong idea, for if good dining room service is expected the employees must be experienced, and to keep experienced employees in the dining rooms they should receive the same pay as other employees. No matter how well the kitchen and dining rooms are equipped, if they are not manned properly, the equipment will suffer and the service be unsatisfactory. No one would think of putting an expensive piece of machinery in charge of some one who could not take proper care of it. Why, then, should a dining room be placed in charge of a person to whom so little wages are being paid, that there is no incentive to continue in dining room work long enough to understand it? If good service is desired something must be done to furnish an incentive for the employees to give good service. One cannot expect to take all the while and to give nothing in return.

Basic dietary ration tables.—For many years there have been tables in use for the calculation of interest, income on investments, wage tables, lumber tables, etc., which are published in different forms for the convenience of persons who make calculations of this nature. The basic dietary tables are the application of this idea to the issuing of food from the storeroom to the kitchens for preparation for serving in the dining rooms, and the system deserves discussion, as, used together with the waste accounting systems, it makes for economy.

To illustrate, the basic dietary tables prepared a short time ago for the kitchen designated as "Group 3 Kitchen" are given. This kitchen serves about 100 male hospital cases, 100 male working cases, 149 non-working male cases, and 40 employees. The census is made each week and the requisitions on the storeroom are made in accordance with the census, which does away with a common, though objectional practice, which usually prevails in institutions, *i.e.*, to fix upon a certain amount to be issued to each kitchen. Under this old system the same amount was issued to the kitchen, neglecting any notice of increase or decrease in population, thus causing an over-supply or under-supply of food to the kitchen.

Group 3—Kitchen. Dictary rations, one meal, employees only.

FOODS SERVED.	NUMBER SERVED PER MEAL.							PER CAPITA.
	50	60	70	80	90	100	110	
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	oz.
Cold meat.....	27	32	36	43	49	54	61	8.958
Mutton chops.....	34½	29	34	39	48	51	58	7.833
Ham.....	24½	29	34	39	46	51	56	7.633
Beef steak.....	21	16	39	36	37	41	45	5.714
Corn beef for hash..	18½	18	17½	20	23½	25	27	3.918
Fresh beef for hash..	12½	15	17½	20	22½	38	37	3.916
Hamburg steak.....	17	21	25	29	33	37	41	5.595
Roast beef.....	31	37	43	49	56	62	69	16.971
Roast mutton.....	31	37	42	49	36	62	69	16.071
Mutton stew.....	37	38	38	43	48	54	61	6.952
Beef stew.....	37	21	38	43	49	54	31	6.652
Macaroni.....	4½	5½	6	7	8½	9	10	1.343
Peaches.....	9	10½	23	15	18½	18	19	2.792
Prunes.....	9	10½	13	15	16½	18	19	2.793
Apples.....	6½	6	3½	10½	18	13	14	2.041
Rice.....	2½	3½	4	4½	5	5½	6	0.695
Tapioca.....	2¾	3½	4	4½	5	5½	6	0.905
Gelatine.....	½	⅞	1	⅞	1¼	1½	1½	0.233
Cheese.....	3½	4	4½	5	6	6½	7	1.119
Sago.....	2½	3	3½	4	4½	5	5¼	0.783
Canned salmon.....	12	14½	17	19½	33	24	27	4.023
Salt fish.....	81	25	29	33	57	42	26	6.24
Eggs (dozen).....	12½	14	11⅓	19	21½	24	26½	3 each
{ Bacon.....	16	12	15	17	15	31	23	3.357
{ Eggs (dozen).....	6½	10	11¾	13⅓	15	16⅔	16⅔	2 each
{ Bacon.....	10	12	15	17	13	31	23	3.357
{ Liver.....	14½	17	20	33	16	29	31	4.476
Liver only.....	17½	30½	33½	36	29	34	36	5.595
Potatoes—unpeeled (bushel).....	½	⅞	½	¾	1½	1½	1	8.131
{ Ham.....	17½	21	26	27	31	35	38	5.595
{ Eggs (dozen).....	8⅓	10	11¾	13⅓	15	16⅔	18⅓	3 each

BETTER DRESS STANDARDS.¹

MRS. JOHN C. HESSLER.

The problem of comfort in dress has already been solved, as the result of a most interesting evolution during the last thirty or forty years. I recall that, in my girlhood, the ideal waist measured from 20 to 21 inches. Today, in recent notes from Paris, we are told that French dress-makers give as the correct size of the ideal waist 26 inches, the fine and generous proportions of a Greek statue.

Built on the foundation of an undistorted body, woman's dress is today structurally good and artistic. It follows sincerely the lines of the body it clothes. Sleeves conform to the natural shape of the arm, bodices are easy and comfortable. Collars are comfortably high or can be omitted. Skirts are usually wide enough for freedom of motion. Shoes of sensible shape are on the market.

Since we can clothe ourselves comfortably in every particular, what more is required? The question of woman's dress is not only one of physical comfort, but also of that gracious harmony and beauty which gives pleasure to the beholder and expresses in visible form an inner beauty and orderliness of spirit.

The question of dress cannot be separated from artistic standards. The Puritan cannot lastingly prohibit beauty in costume. A love of beauty grows in humanity along with its spiritual growth, and as one of the spiritual elements of life it should have its part in the furnishing of the home and in the clothing of the family.

Beauty in woman's dress lies in the attractiveness of material both in fabric and color, in the grace, continuity, and consistency of line, of the design of garments, and their adaptability to the wearer and her needs. It does not lie in complicated decoration. We look to dress, and rightly, to enhance natural beauty and to conceal natural defects. These standards of beauty are not pecuniary standards. They are for rich and poor alike. But instead of beautiful clothes most of us are satisfied with fashionable clothes. We have accepted the spurious substitute, fashion, when we went to buy beauty.

¹ Part of a paper presented at the biennial meeting of the General Federation of Women's Clubs, San Francisco, 1912.

In this day of the marvelous intellectual and social growth of woman, it is a matter for wonder that so many still unreasoningly obey fashion. Fashion grew in the proud desire of the royal princess—or the money princess—to produce by her dress a sharp distinction between herself and inferior mortals. These inferior mortals persistently imitated her as quickly as they could, to destroy this distinction. But the growth of intelligence and of a more sympathetic humanity is slowly remedying this. That it has lasted so long is because the fashion mania has been fostered. Women, through their love of change, have been exploited commercially, by means of the great foreign dress-makers who make the styles.

Few in America know that the inspiration of styles for the last year and a half or two years were the wonderful costumes of the Imperial Russian ballet, which has been appearing in the great cities of Europe. For them, Bakst, one of the greatest decorative artists of any time, staged Cleopatra, Scheherazade, and Narcisse. Dress designers seized with avidity the Egyptian, Oriental, and Greek suggestions of his costumes and the result is the chaos of present day fashions. Bakst's women are large waisted and many of them wear sandals. As a result, styles are large waisted and fashionable shoes are shown that are almost heelless. From Bakst come Oriental designs, primitive effects (derived partly from the Greek), the new cut of the peasant waist, the Greek mode of hair dressing, large meshed nets—adapted from Cleopatra—strange tall head dresses—which inspired recent millinery—and a host of details. They were designed to express physical movement and the voluptuous emotions or immoral and decadent scenic productions, and performed their office with artistic audacity and success. Translated through the dressmakers, they have lost much of their beauty—which after all, was largely in the ensemble—though they have lost little of their suggestiveness.

Changes in fashion result in tremendous economic waste, first, through the use of perishable material, second, through the discarding of clothing which has not begun to wear out.

The articles discarded because out of fashion were produced by labor. The new garments which take their places are also the product of labor. Discarding them results in needless labor. It is folly to say that these extravagances give work to some one. Every moment spent in labor which is unproductive of the real needs of the world is worse than wasted. It should be turned to constructive uses. The women who work in trades which minister to the waste of fashion

should be freed to rear the neglected children who tug at their skirts. An appalling number of the white slaves of society are slaves to the frivolity of women.

But, after all, the greatest loss in dress is not the loss of money, great as it is, or even the injustice to the worker. It is the loss of womanly dignity and stability of character which accompany the dissipation of time, labor, and thought which are the result of false standards.

I believe too, that all womankind, which, as Miss Addams points out in her new book, suffers as a whole from the degradation of individuals, is suffering definite moral degradation from prevalent fashions. This has come about so gradually that many of us do not realize how our standards of personal modesty have been blunted. We women have not realized that we have been watching, or, with innocence of evil intent, taking part in the breaking down of barriers between virtue and licentiousness. This is the very serious reason why the question of dress should be treated so frankly.

The problem of the increasing immorality of young girls is causing growing concern to those who know of it. Shameful proof of the reality of this situation is startling educators. A great scientist—a physician, a cosmopolitan—when asked what he believed to be the cause, replied: "I believe that it is due, in large part, to present-day dress. And their mothers are wearing the same sort of clothes," he replied, and went on to say, "I am ashamed of our countrywomen when I go abroad. They dress as no decent woman dresses in Europe. They go to Paris and see in public places, beautiful women driving in elegant carriages, wearing lovely and conspicuous gowns. Doubtless they think that they are seeing the great ladies of the city, for they hasten to the shops and buy similar garments. They do not realize that these beauties are the demi-monde and that the clothes they bought were made for the demi-monde—and for gullible Americans. No French gentleman would allow his wife to wear them."

We can only hope that the madly accelerated speed at which fashion moves today is rushing toward destruction of its empire. As women think for themselves along other lines they are learning to think independently concerning questions of dress. We cannot expect any revolutionary change at present, any "throwing off the chains of fashion." An increasing number are applying tests of common sense to offered styles. As the women of this number are among the intellectual and social leaders of their sex their influence has been and will be felt increasingly.

A certainty of reform lies in a better system of education of our young people. Boys and girls should be taught in the schools how to choose textiles, shoes, and other articles of dress and learn to be intelligent consumers. This instruction should be given before the high school is reached and should be continued throughout high school and college.

GENERAL DEVELOPMENT AND PRESENT STATUS OF THE SCHOOL FEEDING MOVEMENT.¹

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When three years ago a group of us began to study the provision of meals in elementary schools, we supposed that it would take about six weeks to complete the study and prepare a short monograph of whose length fifty pages seemed a fair estimate. As to this brevity we were soon disillusioned when we found references in the school hygiene journals to the twenty-fifth anniversary of the founding of school lunches in this city, and the assumption by that city of work carried on for forty years past by private philanthropy. In the end, we found we had to work back over a century to get back to the beginning of the movement.

The actual historical beginning was made when the city of Munich established People's Soup Kitchens. These kitchens were a part of the campaign initiated by the pioneer social worker, Count Rumford, in his world-wide campaign against vagrancy. They were designed to meet the need of the people of all ages, not only of the single group of vagrants, and from the first schools were encouraged to send groups of school children to them for a warm meal at noon. It is significant that this work was associated in the beginning with the larger industrial problem and that it antedated compulsory education. The work, though not organized for many years, was never discontinued, and in 1876 had become so definite a part of the school equipment that the city passed a law requiring all school buildings to include a kitchen and dining room.

France.—In France the work commenced in 1849, when a local battalion of the army stationed at Paris found that there was a surplus in

¹ Presented at the Lake Placid Meeting of the Administration Section of the American Home Economics Association, June, 1912.

their treasury at the end of the year. The men decided to use this money for the general good instead of keeping it for themselves, and looked about for a way to do this. At that time schools were provided at public expense but there was no compulsory school law. Text books were not free and sending their children to school was an expense beyond the means of many families. The soldiers finally decided to use the money to help their neighbors' children get a schooling, so they presented it to the school with the request that this be made the nucleus of further appropriations for this purpose. The "Caisse des Écoles" (school fund) gradually spread to other districts in the city, and in 1882 when the national compulsory school law was passed, one of its sections required the establishment of such a school fund in every school district throughout France. There was no stipulation as to the use of this school fund beyond the general one that it was to be used toward making the school more effective. From the beginning a large part of the funds has been dedicated to the school restaurants or *cantines solalaire*. At present over 1200 communities report that school money is used to support the *cantines* and this work in a modified form extends to the rural district. The work in France is thoroughly democratic. All classes of children attend the lunches, together with teachers and higher school officials. The school restaurant is so much a matter of course that, just as in the case of medical inspection, it was given little publicity until other countries investigated for their own uses.

England.—In England it was Victor Hugo who, in 1866, by furnishing meals to the country children in the neighborhood of his home in the Isle of Guernsey, started the charitable provision of meals to school children which, during the next fifty years was extended widely over the country. Little official notice was taken of this work in spite of local effort until the events of the Boer War. In 1902, Frederick Maurice, surgeon-general, made the startling announcement that only two out of every five men who applied for admission to the army could be admitted. The three were rejected because of physical unfitness.

Whether or not this statement was accurate, it served to rouse the country to a high pitch of excitement and for four years England was the scene of a most searching self-analysis that any country has known. It was rumored abroad that the English race was deteriorating; that the end of her supremacy was begun, and that she was repeating the history of Rome. Parliament appointed commission after commis-

sion to investigate these rumors. The first was charged to look into the condition of physical training in the schools with the idea that perhaps the gymnastics were at fault. This commission, after examining the physical training from the universities down to the public schools, discovered that this was not the case. The extent and character of the work were adequate but in the public elementary schools at least, the children themselves were poor material to train. One of the main reasons reported was that they were weak and undeveloped because of malnutrition. Accordingly the commission recommended that any reorganization of physical training in the schools should include the provision of food, either supplied by private funds or at public expense.

The next year a second commission was appointed to inquire into the causes of the alleged physical deterioration of the race. This commission reported that the causes were not evidently hereditary. In overwhelming majority the children born in each generation were sound, but the conditions of life were such that this initial strength was soon undermined. Again the factor of malnutrition was noted and it was declared that of the three factors affecting national vitality, housing, occupation and feeding, the most important was feeding. This commission in turn recommended school lunches as a partial remedy. The entire question was thrashed over again by a third commission appointed to investigate the extent of charitable school feeding in the country and to evaluate its effectiveness. This commission found that although widespread, private provision was totally inadequate and indicated that the school itself must assume responsibility and control if this was to be made adequate. Shortly after the report of the third commission a bill was presented in parliament that the school authorities might appropriate money for school lunches, and after a fourth commission had spent a year in investigation during which time the conditions disclosed by former commissions were emphasized, the bill became a law. A present there are about 150 towns providing wholly or in part for school lunches in accordance with the provision of the act. In London alone over 55,000 children are served daily. It is significant that the Provision of Meals Act was the first piece of legislation growing out of the fear of national deterioration. It preceded the Compulsory Medical Inspection Act, the codification and revision of all legislation dealing with children known as the Children's Act, the foundation of the National Anthropometric Survey, old age pensions, the minimum wage board and the

National Society of Eugenics—all steps toward national conservation in England. At present the work of school feeding is under the direction of the medical department of the national education board. Every child in the schools must be examined by the school medical officer and his nutrition is made the basis of the report on his physical condition.

Scotland.—In Scotland, which has its own school feeding law, the work is in a sense compulsory as the local educational authorities are required to see that any child reported as underfed is cared for.

Germany.—Within the last twenty years in Germany the work of school feeding has progressed largely on the basis of scientific experiment. Begun in Munich, as before mentioned, the work developed throughout the country as the result of independent initiative arising out of local need. The first national consideration was given when, in 1890, a conference of vacation colonists met and discussed means of making the effect of their work last through the whole year instead of a few weeks in summer. It was generally agreed that one of the main troubles was that the children returned to bad feeding and the result of the country outing was soon lost. The conference dispersed with the idea of investigating this particular problem, and during the next six years investigation and propaganda were carried on. In 1898 the Social Democrats introduced a bill in Reichstag providing for school feeding in all cities. This bill was defeated on the ground that it would mean a swift exodus from the country districts thereby increasing the congestion problem. When England passed her act, Germany became apprehensive of her own condition and since it was estimated that 46 per cent of the drafted conscripts were unable to pass the physical tests one of the major causes being, as in England, long continued malnutrition, the subject of school feeding has become a burning one. There is now agitation for compulsory legislation. The thoroughness with which the matter is being considered is indicated by the fact that during a single investigation records were made of the daily food of over 500,000 children and the causes of 30,000 cases of malnutrition were exhaustively enumerated. Other features of the German work are experimental investigation into children's food needs, and the elaboration of school menus to meet the standard requirements. At present one-half of all the cities have municipal or semi-municipal provision and four out of five of the cities with over 100,000 inhabitants. It is significant that the work is best done where child labor laws are best enforced. Though the movement has developed in practically

all the great European countries, and though each country presents its characteristic features, it is sufficiently well illustrated by Germany, France, and England. *To summarize.*—Begun over a century ago and promoted with the various objects of charitable relief, encouraging school attendance, promotion of hygiene, and national welfare, the work now is receiving national recognition and is subject to national legislation in France, Bavaria, Denmark, Switzerland, Holland, and Great Britain, and is national in scope with support from the municipalities in Germany, Italy, Sweden, Norway, Finland, Austria and Belgium. Beginnings have also been made in Spain, Russia and the United States.

Coming to the United States we find the work developed beyond the simply local only within the last three years. From small scattered attempts the work has spread to nearly forty cities ranging as widely in size from New York to Eau Claire, Wisconsin, and in locality from Boston to Memphis and Chicago to Houston, and into rural districts where it is logically associated with domestic science. The great public interest in the subject is shown by the daily press and periodicals, and by the publicity given it at the Child Welfare Conferences, School Hygiene and Medical Association meetings, etc. In several cities such as Chicago, Buffalo, Rochester, St. Louis and Denver, the school boards actively support the work. In others such as Philadelphia, New York and Boston, there is passive coöperation and tolerance.

The present need of the movement in this country is not propaganda but development of technique. We must be warned by the development of medical inspection and playground movements where in a large number of cases the work has been hasty; large initial funds have been appropriated but no insurance made against the waning of popular enthusiasm and momentary support. The interest shown by the Home Economics Association is a most hopeful feature and I am glad to report that your committee has formulated a definite program for dealing with precisely this question. We propose to constitute a clearing-house for information, mutual criticism and coöperation of people in all parts of the country actively engaged in school lunch work. Within a short time we hope to have in preparation a manual of school feeding which will deal with points of administration, organization, technical features of equipment, plans of dietaries, menus, etc. Another hopeful sign is the introduction of normal courses in school dietetics started or planned in universities and technical schools throughout the country.

In concluding this summary of the present status of school feeding in this country the two conferences to be held in the fall of 1912 should be mentioned. The Home and School League of Philadelphia proposes to devote two days of its annual conference to school feeding including an exhibition and demonstration, and the International Congress of Hygiene and Demography at Washington will include several exhibitions of school lunches from different parts of the country as well as many addresses by experts on questions of nutrition and relative topics. We hope that this work may take away the sting of the German writer's reproach who three years ago in a treatise on school feeding said she would begin with the United States as so little was done there.

THE RURAL SCHOOL WARM LUNCH.¹

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University of Minnesota.

In order that the brain be clear and capable of doing efficient work the physical needs of the body must be supplied by proper food. The food must be of the kind, quantity and quality suited to the requirements of the person. At no time during the life of an individual is the subject of "What to Eat" more important than in childhood.

Children are in the formative stage, not only of muscles and bone, but of mind and habits. Careless habits of thinking produce a dwarfed mind, as habitually stooped shoulders lead to undeveloped lungs. The young human being, to develop normally, must have food which will "fill the growing demand;" which will furnish material for the growth of the body, and also supply energy to carry on the activities of child-life, work, play, and study. Generally speaking, the school lunch has, until recently, received little intelligent thought.

During the last few years many of the large cities have proven, to the satisfaction of those most interested in child welfare, that a wholesome, simple, warm dish, served at the noon lunch hour, is a success from more than one view-point. Even where the city furnishes the lunch free of charge, it is considered an economical plan, and should not lead to a demoralizing dependence as feared by some.

The immediately noticeable good results are: more and better school

¹ Presented at the Lake Placid Meeting of the Administration Section of the American Home Economics Association, June, 1912.

work; smaller need for special training to enable pupils to pass grades in the allotted time. The probable good results, not apparent at the time, are a better physical condition of the pupils, and the stimulus received from a knowledge of work well done, and of being in line with the successful ones. These conditions must of necessity produce a healthier state of mind, and lead toward independence rather than dependency. There is no reason why, if such a plan result in better and more efficient work in the city schools, it should not be equally beneficial in the one-room rural school.

After studying conditions in rural schools for some time, I decided that hot soup at least could be prepared and served in the country school, provided a feasible working plan was suggested. Later the *Minnesota Extension Bulletin No. 19* was issued, suggesting how hot soups, gruels, chowders, and other simple dishes might be prepared and served, what utensils are needed, etc. Simple recipes are given, with a suggestive lesson on the food materials used in each. The food materials suggested in these recipes are such as are common to all households, hence readily obtained in any community. This bulletin was sent to county superintendents for distribution. A goodly number of teachers have tried the plan with satisfactory results. Parents and school boards in general think the plan an excellent one, and have given substantial aid to the teachers. Pupils are very enthusiastic, and are anxious to aid in the necessary preparation before the meal. Perhaps a good method of giving an idea of how the work is carried on in this state, is to give a few representative answers received from teachers to a list of questions which were sent out in the spring of 1912.

1. Has preparing and serving a hot soup with the noon lunch been tried?
 - a. Yes.
 - b. We have tried the preparing and serving of a hot soup for a number of weeks past, with what we consider a great deal of success.
 - c. We have tried serving soups, sometimes cocoa, with our noon lunch.
2. If so, with what success?
 - a. Splendid.
 - b. It has been very successful.
 - c. I believe it is a great success. I never saw the children so enthusiastic about anything as they are about our oil-stove experiment. They think soup and cocoa taste better at school than anywhere else. My only regret is that we did not get the stove sooner.
3. How much time is necessarily spent in the preparation of the hot dish?
 - a. But very little of school time.
 - b. Fifteen to twenty minutes.

13. What are some of the benefits derived from carrying out the Hot Lunch plan?
- a. It is an aid in discipline, a step towards domestic science, a great comfort, especially on cold days, besides the nourishment furnished in the foods.
 - b. More appetizing than only cold food. Brings the scholars together as a family. Meal is more quiet and orderly.
 - c. I believe it essential to the health and future welfare of each pupil.
 - d. The pupils do better work after having hot lunches and it is educational in the line of cooking, manner of eating, cleanliness, etc.
 - e. I think this work a great benefit both to the children and teacher. It helps to make the school more homelike.
 - f. Health of children is benefited, opportunities for teaching good manners and cleanliness, boys more manageable, less confusion.
 - g. It gives the children something warm at the noon hour. They enjoy eating their lunch more than ever before. It helps them to study better during the afternoon session. It is such a success that I would not do without it again if I had to furnish all materials myself.
 - h. Noon lunch is eaten quietly and more slowly.
 - i. So many of the children eat very little for breakfast that I believe they need something warm for dinner. A school lunch is not always very appetizing as the food dries unless it is packed carefully. If a hot dish is served, this will not be noticed much and the children eat a hearty meal, while without it, perhaps all they eat is a piece of cake or something equally nourishing—or nothing at all. Then, too, school is more “homey” as one of our girls said, and that means a good deal to all of us.

It was my privilege to partake of the hot dishes prepared and served in a number of one-room rural schools early in May of this year. I found them very appetizing and pleasing. The degree of order, cleanliness, and dispatch with which the work was done before and at the meal hour, differed in different school-rooms, very much as one would find differences in the homes of different housewives. In some cases, the entire work, from the preparing of food material to the hanging up of the dish pan was done quickly, neatly and without noise or confusion. In other cases, there was less order; but in no case did the work seem to attract the attention of the pupils at study. Teachers all expressed the opinion that the noon hour was more enjoyable and less trying when the noon hot lunch was served.

REPORT OF THE NEW YORK SCHOOL LUNCH COMMITTEE.¹

The New York School Lunch Committee was not formed until lunches had been served for several months at a school of 2000 Irish children on West 44th Street, and at a large Italian School on Mott Street. The principals of these two schools feeling the impossibility of successfully teaching hungry children, asked two of the present School Lunch Committee to help them sell food at noon in the assembly room, and on November 23, 1908, luncheons began. This is mentioned so that it will be realized how naturally this work came into existence.

At first, the administrative part of this noon meal was very poor. There was no knowledge on either the school's part or that of the committee of the best methods, only a strong conviction that the children were being held back in their studies because of insufficient food or the wrong food, but we fortunately had had experience in preparing inexpensive nourishing food elsewhere. In fact the administrator should have had much experience in actual cooking and selling food and not try to do it from theory.

From the first this lunch has never been free. There were in the beginning three prices, a 3-cent, a 4-cent and a 5-cent meal, but this soon proved a poor idea as the children who paid 5 cents felt superior to the children who paid 3, while those paying the lower price always had a feeling of being cheated and sitting at a second table. This was soon changed and all lunch checks sold for 3 cents.

A Lunch Committee soon suggested itself as a necessity. We realized that the work was growing without sufficient organization, while principals of schools all over the city were asking for the lunch. The work, even to this point, was done with the permission of Superintendent Maxwell, of the Board of Education, but it was not organized until 1909, when a committee of fifteen was formed and approved of by Mr. Maxwell. Since that time this committee has administered all elementary school luncheons in New York City.

¹ Presented by title at the Lake Placid Meeting of the Administration Section of the American Home Economics Association, June, 1912.

Luncheons are now being served not only in the two schools mentioned, but in five others, three of them of Jewish children, making seven elementary schools in New York serving lunch.

The New York School Lunch Committee is also responsible for food served to the Special Anaemic Classes which have been opened in more than half a dozen of our schools. It should be stated in passing that these Special Anaemic Classes not only receive the regular school lunch but also have milk served at 9.15 in the morning and at 2.30 in the afternoon. All food is carefully supervised by a physician who comes once a week and weighs the children. This anaemic work in New York is paid for by the Charity Organization Society.

In the regular school lunches the method of selling the 3-cent lunch checks is not the same in every school, but the following has proved the most satisfactory. The assistant principal or a special teacher counts out the brass checks at 8.15 a.m., placing in each box (and there is a box for each floor) a few more checks than were sold the previous day. As the teachers enter to sign their time one from each floor takes a box, and when the school goes to assembly at 8.40 this teacher makes the rounds on her floor, selling to each room the checks required. This appointed floor teacher then brings the box, with money received from the sale of checks and all checks not sold, back to the principal's desk, having filled out an enclosed slip stating number of checks originally in box, number sold to children, number sold to teachers (for teachers pay 5 cents while children pay 3) and money received. When the boxes are all in, the one in charge sums up the total number of checks sold on all floors and sends to the cook the number of luncheons that will be needed. The cook, knowing the exact ladlefuls of soup or bowls of beans required, can avoid all waste. The teacher in each room holds the checks for the children until the first bell rings at noon when each child is given the check he has paid for. There are, of course, cases where a child is unable to buy his check himself, and such check is often purchased for him and paid for from some outside source, but every check must be paid for by somebody. So far the School Lunch Committee has not solved to its satisfaction this problem of indigent children.

The luncheons are cooked in the school building, the Board of Education allowing a room or a part of a room for the purpose. The Board has also, in some cases, contributed the tubs in which the dishes are washed, and in one or two instances provided the stove. Apart from this, all kitchen utensils and all deficit must be met by private sub.

scription. This, of course, limits the ability to extend the work beyond a certain point. The New York School Lunch Committee expects to carry on this work only until such time as it has demonstrated to the people of New York the necessity for the city to serve luncheons on a large scale.

In the preparation of the meal one cook in each school prepares the lunch. If there is a Special Anaemic Class that is served separately, then a kitchen maid is necessary. In addition to this paid service from ten to fifteen children assist in serving the meal and afterwards in washing dishes. These children receive their lunch in return for their services.

Besides the 3-cent meal which every child must have who comes to the lunch at all, there is a penny table in each school. On this table there are for sale such things as baked apples, apples on the stick, prunes, corn, crackers, spice cakes, sandwiches, and always hot cocoa. The wares on this table vary each day, and must be studied to meet the taste of the children. Any child who has bought his check in the morning can spend his extra pennies at the penny table, and we have found that this table prevents the push-cart rush at noon. It is the fun of buying at this table that makes many children willing to purchase the lunch check in the morning. There is nothing very exciting about spending money for a bowl of soup, but there is something that appeals to a child's nature in choosing what he will buy especially when it is the dessert part of the meal. So far it has seemed necessary for some one from outside to come in at noon and take charge of this table, also the rolling of the coins taken from the sale of checks. Teachers in our public schools are too busy to have this additional work put on their shoulders by an outside organization. If teachers *are* to supervise the luncheon it must be considered and arranged for by those planning the school work as a whole. Before noon each day the pennies from the sale of the morning checks are turned over to this representative of the School Lunch Committee. She counts and rolls this money; adding (after the luncheon) the receipts from the penny table. Each day, all receipts are put into a bag, and at the end of the week the contents of the five bags are added—a printed slip is filled out and all handed in to the treasurer of the School Lunch Committee.

The success of the luncheons in the elementary school lies, it seems, in good supervision. For example, a child who is ladling out soup naturally (without supervision) will give his friend a large ladleful while he takes the opportunity to give the boy whom he doesn't like a

meagre amount. Very small children are apt to get burned with the hot soup and must be watched and often guided to the table. At the penny table it is neither wise nor kind to have children do the work without constant supervision on account of the handling of money. To make change, to help the small children decide what they want, to keep the line moving so that those waiting will not grow impatient, all this takes daily directing.

The detail connected with school lunch work is very great. Hundreds of pennies have to be collected from many directions. They pass through many hands and must be rolled before the bank will accept them. What is sold on the penny table must be sold at a profit because a boiler of soup costs \$2.50 and only \$2 is received for it. This deficit is met by the profit from the penny table. Also, it is necessary to see that the right amount of nourishment is put into every day's soup, and it is well-known that a good cook can make soup taste well and still not satisfy as to food value. Children must wear clean aprons. It is hard to make an inexperienced maid in our own homes feel the necessity of daintiness. How much harder is it to make children care that their aprons are stained, and surely the cook is too busy in her own department to watch the children. I regret to say that even she needs supervision as to her own perfect cleanliness. Children who have lived in the street and have never hesitated to help themselves to the food within their reach, are just as smart when it comes to getting the best for the least money at school luncheons. For example, it is very easy for one boy to buy a check and purchase his tray of soup and then go away and sell for one penny the privilege of carrying that tray and empty bowl up to the penny table. This second boy purchases any amount of dessert without the necessity of eating soup and this one tray can be sold many times if someone is not on hand, someone quicker than these street-trained children.

A lack of this proper supervision is, it is believed, what has brought criticism upon the school lunch, where criticism has been given, and yet this part of the work is expensive and the children's pennies can never pay for it. The great difficulty is that the schools are scattered—and the one hour when supervision is needed is the same in every school. A paid supervisor to go into each school at noon is too expensive, and yet from somewhere this supervision must come.

The manner of serving the lunch is as follows: One boy collects the checks as the children come up in line at exactly twelve o'clock. Two boys fill the bowls, while another puts the bowl on the tin tray and

hands it to the child. These children wear aprons, caps and cotton gloves. The child then passes on and receives his spoon and then his two slices of bread. His 3-cent meal is now complete—if he wishes more, he and his tray pass on to the penny table, where he can buy to the extent of his income. The children stand at long tables which are simply boards on horses. At the end of the meal all trays are taken to a receiving table, spoons are dropped into hot water, two boys scrape the dishes and pile them in a wagon, which is later wheeled into the kitchen for washing. The meal is over at 12.25, or 12.30 at the latest, so that half an hour still remains for play.

It is impossible to give the entire menus of all the schools. In the Italian schools we have Italian cooks, and the macaroni, dried lima beans and lentils are used, all dishes being cooked in Italian oil and in the Italian way. In the Jewish schools only kosher dishes are served, and all are cooked by Jewish cooks and with the full approval of the rabbi of that district. In the Irish school, for 3 cents a child receives Irish stew, or baked beans, potato with meat gravy, rice, pea, bean, barley soups, and what they like above all things, clam chowder. What children like must always be taken into consideration. A child is not at home with his mother and obliged to eat what is put before him, he is a purchaser out for himself. His 3 cents is a great deal of money to him. It can be spent to his perfect satisfaction outside. There is no compulsion exerted by either the school authorities or the School Lunch Committee. We have to make the lunch more attractive than the red lemonade, the candy and the hokey-pokey outside. Just because *we* believe that oatmeal and milk would be good for him is no reason to suppose that he is going to spend his money for oatmeal and milk when, as we are told many times during the week, he is sick of it because he *has* to eat it at home. Therefore, consideration of the child's taste must always be taken and weighed with the food value.

This 3-cent meal is the way in which luncheon is served at five schools. In two others the plan of the penny luncheon is being tried, for some of the committee felt that there were children who might have 1 or 2 cents, but not the required 3. Also, the larger children, especially boys, did not like to be dictated to as to how they should spend the entire sum of 3 cents, even though they had it. Therefore, the experiment is being tried of having the check bought in the morning worth 1 cent and the child gets a penny's worth of soup for his check (although it is really more than 1 cent's worth). He can buy

bread for the second cent, and then pass on to the penny table. The School Lunch Committee still withholds its opinion as to which method of serving luncheon is the better.

Investigations are being carried on at the present time to help decide this question. For example, in a school where a large part of the children came from very poor homes, the lunch was put down to 1 cent. In this school the names of all the children who spend only 1 cent at noon and, therefore, had only soup and no bread and no extras, were taken for two weeks. Out of 200 children a day, there were only six who took this unfortunately small meal repeatedly. These six were all visited, and in every case the parents said that they gave the child plenty of money in the morning but the temptation to buy on the way to school had been too great and so only 1 cent remained when the noon hour came. We also visited the children who came regularly to the lunch to find out from what class our custom is drawn, for some have asserted that the mothers use the school lunch so that they need not feel the responsibility of cooking dinner. We feed on an average about 10 per cent. In the schools of 2000 children, from 200 to 250 buy their luncheons at school. In an Irish school the names of 90 of the most regular were taken and the mothers visited. Thirty, or about one-third, put the entire responsibility of the child staying at school for lunch on the child. Such remarks as these seemed to decide the question: "He wants to go."—"He teases till I give him the pennies."—"He won't come home because he likes to eat with the other children." When asked if the mother herself were glad, she would answer that she did not care, it was all the same, the children decided. Twenty-eight, or about one-third, gave the reason that the family was large, the work heavy. The investigator saw from the huge washings and the three or four children under school age that the mother spoke the truth. To these women the school lunch lightens labor, and although they are at home at noon it makes the home more orderly and work more possible if the school children do not come rushing in. In sixteen cases, or about one-sixth of the number investigated, the same reason was given, but in these cases it was thought not as necessary. The mother seemed to have time to cook, but was glad not to. In more than one-seventh of the cases both the fathers and the mothers worked out by the day. To them the school lunch has solved what before was an impossible problem. The child from these homes must depend on the school.

In only five of the cases, the mothers frankly did not approve of the

school lunch, and yet these were cases where the children ate at school regularly. They preferred to have their boys and girls come home at noon, but the children wouldn't come. They said often only a part of the money was spent for lunch and the rest went for cigarettes or candy. In these cases the parents had no discipline over the children, the fact that the mother did not wish her child to stay at school for luncheon was no indication that the child would not be there every day. Many of these mothers had half the children in school while half came home, for the children decided. This is often the case in Irish families. I mention it because the characteristics of the different nationalities seem to have much to do with this school lunch generation.

In the Italian families we find a great desire to have the children at home at meal time. In the less intelligent, this instinct is very strong as they do not as quickly see the advantage to the child of the hot midday meal at school, they cannot as easily accept a new idea. In nearly all of the cases where extreme poverty was the cause of malnutrition, the family was found to be under the care of some charitable organization, sometimes the woman realized that she was unable to give her child the right food, but she had not the money to pay for the school lunch. The Lunch Committee has had part coöperation from the two large charity organizations of New York, but it would seem right if luncheons become an established thing, that the children of these families receive daily the school lunch as a part of the aid given the family.

In another school of Irish children, 83 of the families where malnutrition seemed to be interfering with the child's study were visited. Not any of these children were buying their luncheons at school. A few were receiving the meal as compensation for services rendered, a few were given lunch which was paid for by an outside source—the others did not come. The chief reason, the investigator found on visiting the homes, was what she called the indifference of the mother. It was the same kind of indifference that in the other cases mentioned gave the children the pennies because they teased, there was no thought whether the lunch was a good thing or not. In one instance it was easier to give, in the other, it was easier not to. In the latter case the parents were shiftless, they could not remember to get the 3 cents ready in the morning although in many cases the mother acknowledged that she had 5 cents, 10 cents and sometimes a quarter, but she couldn't think to get it changed. In some homes, usually where the mother

drank, no thought was given to where the child ate. The children from these homes come to the lunch once in a while, but they usually drift away at noon, no one knows exactly where they eat or what they eat. Shiftlessness, lack of thought, the same ignorance that is so often the reason for the poverty, and in some cases real poverty, prevent us from reaching all of the children whom we must reach if our lunch is to serve the purpose for which it was established.

An investigation last year proved the advantage of the lunch to these under-nourished children. Out of 1000, 265 were selected as suffering from malnutrition. Half of these were Irish and half Italian. They were weighed and measured and their home conditions studied. Half were given lunch while the other half ate at home, ate from push carts, or went without lunch altogether. At the end of three months the same children were weighed, measured and their standing in school looked into. It was found that the average gain in weight of the children who stay regularly at school was three times as great as that of the others and their standing had improved to a marked degree.

As to the financial side of the school lunch work in New York, the treasurer's report is here presented in part. It will be seen that we do not pay expenses. The cost of providing 63,434 lunches was \$2937.83, which means paying for all food and service in preparing food. We received for these 63,434 lunches \$2537.35; the deficit being only \$400.48 for the year or 0.0063 per child per day (this is without administrative work). We believe that food and service can be entirely paid for by the children. We do not believe that if every school in New York City opened a lunch room and every child bought his luncheon that that would pay for the equipment, the maintenance and repair or the administrative work. This account of school lunch work in New York is not meant to be discouraging. We are feeding on an average twelve hundred children a day. The children are gaining, and the food is thoroughly liked, but we do not think of it as a finished problem. It is of course the children of the ignorant, poor parents that we must reach—not a few of them, but all of them.

It is the history of all new movements that the timid and ignorant hold back at first, but we feel sure that the continued establishment of the lunch room in elementary schools will itself solve the problem by the very strength of its advantage.

The equipment for 200 children is as follows: 200 bowls, 200 trays, 200 spoons, 100 saucers, 2 twelve-gallon boilers, 1 six-gallon boiler, 1 large basket for bread, 1 table cloth, 3 ladles, 1 bread cutter, 2 large

spoons, 1 large knife, 3 small vegetable knives, 1 frying pan, 4 large supply cans, 1 garbage pail, 1 small pail for spoons, 1 large tray, 1 chopping bowl, 1 meat chopper, 3 milk pans for crackers, etc., dish towels, towel rack, wash board, scales, scrap dish, broom, dust pan, 16 horses and 8 long board tables, 3 stools, 10 aprons for servers, 6 pairs cotton gloves, dish pan, 3 kitchen tables, 1 zinc cover top table for penny table.

MABEL HYDE KITTREDGE,
Chairman New York School Lunch Committee.

ELEMENTARY SCHOOL LUNCHES UNDER SCHOOL DEPARTMENT DIRECTION, BUFFALO, N. Y.¹

MARY E. L. SMALL.

This paper must necessarily be in the nature of a report since this week, June 21, marks the close of the first year of serving lunches for public school children under the administration of the school department. There have been so many enquiries regarding the management that this would seem to be a fitting time and place to tell our experiences.

Prior to this year a committee from the City Federation of Women's Clubs had charge, for five years, of the "Penny Lunches," a bowl of soup or one half pint bottle of milk with a roll, served at noon, in five grammar school buildings.

In May, 1911, the Common Council passed an ordinance making this work a part of the Domestic Science Department. The Superintendent of Education is in general charge, in coöperation with a commission appointed by him. A supervisor of lunches was selected from the eligible list of domestic science teachers. She is a graduate of Mechanics Institute, and much of the success of this initial year is due to her deep interest, and her well-trained ability. The city appropriated \$2000 to cover the expense of service and equipment, the food to be sold at cost of materials. This has been accomplished in the main, although with difficulty, as the children had the "penny" lunch idea so firmly fixed in their minds, that the 2 or 3-cent meal did not take well in the old schools. In the new schools, however, with no traditions to follow, the balanced meal has met with favor.

¹ Presented by title at the Lake Placid Meeting of the Administration Section of the American Home Economics Association, June, 1912.

The experiment of serving lunches was carried on in six schools, in three of these for the first time, and it is the judgment of all that the work proved more satisfactory in these three than in the others. The three most important criticisms passed upon the work here in previous years, were: (1) The tendency to relax maternal responsibility in the preparation of a meal. (2) Giving the child more than he knows he is paying for—"wrong values," or as some put it, "pauperizing." (3) Serving at the noon hour an insufficient amount of food to constitute a meal.

With these criticisms in view the aims the past year have been: (1) To serve only those children whose mothers are away at work all day; those who would not have hot food, and those who live at too great a distance from the school. (2) To teach the child the value of money and proper food, by giving him exactly his money's worth. (3) To furnish a meal according to dietary standards.

There has been hearty coöperation from the Board of Health through reports of the Medical School Inspectors, from parents, principals and teachers. The Charity Organization Society has given lunch tickets to needy children.

In two of the six schools, cocoa or soup was served daily to children who brought a lunch from home. This gave an opportunity for suggestions on "The Lunch Box," and in a short time "newspaper-" wrapped lunches disappeared, and in their places were seen neat boxes, paraffine and white paper, and a great improvement in the contents. Then, too, good manners are promoted by a properly supervised school lunch room.

A study of the pupils availing themselves of the school lunches shows the following nationalities and conditions: Polish—One school, average daily attendance in January, 353; Italian—In two schools, 221; Syrians, Irish, and others representing unfavorable social conditions, one school; and a representative class of mixed nationalities from fairly comfortable homes, in two schools.

The staff of assistants includes the supervisor, a cook in each school with one or two assistants as the number of pupils demands; pupils who assist in serving or dishwashing and receive their luncheon as compensation. In two schools the supervisor taught cookery to classes of girls, the results of her day's lessons being some "extra" served at noon. In one other school having a domestic science room, the instructor coöperated by giving a larger amount of material to each pupil

than the usual individual quantity, and sending those results to the school lunch room.

The school lunch has been served in class rooms, in the boys and girls play rooms in basements, and in one school an attractive room was fitted up in a former play room. One of the most gratifying achievements of the year was the promotion, so to speak, of the boys from a cold dark basement to a sunny class room heretofore used for girls only, to have cocoa with their luncheon, the privilege depending upon behavior. It is needless to say that those nice boys never lost that privilege and they are our firmest friends.

The selling of food in our high schools is the janitor's privilege. In our three new buildings, however, there will be modern lunch rooms, to be under department direction. Following is a list of food served at the noon hour:

For 1 cent, any one of these: One-half pint of vegetable, bean, split pea, lentil or rice soup, corn chowder, rice and tomatoes, macaroni and tomato sauce, or, one-sixth quart milk with 2 crackers; 4 stewed prunes, 5 stewed apricots; 1 ounce sweet chocolate, 1 cup (one-sixth quart) cocoa, 2 rolls or 2 sandwiches, fig, date, jelly, 12 peanuts; one-fourth cup stewed apple or rhubarb. These desserts are served only to children who have had the hot food.

For 2 cents: one-sixth quart soup or cocoa, one-half roll, cooked fruit; or one-fourth quart soup with 2 rolls.

For 3 cents: one-fourth quart soup—bean, 2 rolls (or 2 sandwiches), 1 ounce chocolate (or other dessert).

From November 6, 1911, to June 21, 1912, 50,554 luncheons were served; cost per capita, \$0.013.

Expended for salaries.....	\$1119.20
Equipment for three new schools and additions to three old ones.....	224.86
Moving, etc.....	3.95
	<hr/>
	\$1348.01
Food materials.....	735.00
Value of food material on hand.....	24.78
	<hr/>
	\$710.22
Received from sale of lunches.....	585.79
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Deficit on food.....	\$124.43

The deficit is largely due to lunches given for children's services.

EDITORIALS.

On another page of the JOURNAL appears a copy of the circular which has very recently been sent out by the committee having in charge the raising of the Ellen H. Richards Memorial Fund.

**The Memo-
rial Fund.** It recommends that Mrs. Richards' birthday, December 3, be used as Home Economics Day by women's clubs and other organizations, at which time an earnest effort shall be made to put before the public the history and present status of the movement. Many excellent suggestions are given for programs covering the whole field, suggestions which, it is hoped, may be widely used; educational propaganda in this field is greatly needed.

But the part of the circular to which we wish to call the special attention of our readers is the one concerning the Memorial Fund.

We have in previous issues spoken of the growth of this project, the time has now come for concerted action. Through the JOURNAL may be obtained free circulars which will assist any group of workers to organize for raising its proportion of the fund.

Mrs. Richards' name is one to conjure with. Her gentle and inspiring personality became known to a large number of Home Economic groups, especially to teachers and students, and to a still wider circle her books have proved her power of leadership. Her scientific training and her broad views helped her to place this branch of applied science on a dignified plane which it had never before reached. In her name we can ask in every community help for this fund which is designed to carry on her noble work.

This fund, which it is hoped will reach the sum of \$100,000 is called a research and publication fund. We are confronted with an ever increasing call for knowledge that shall help to make daily life in the home more happy and more efficient. Much knowledge already exists, but chiefly in the published papers of specialists or in the reports of such societies as are affiliated in the American Association for the advancement of Science. Still more rich in material for this purpose are the reports of boards of health and of hygienic congresses. Last September during the meetings of the great International Congress

of Hygiene held in Washington it was the subject of universal lament on the part of the press that these discussions should not reach the people who stood most in need of them.

Work of a high grade bearing on nutrition, clothing, shelter, technical education and a host of other subjects should be summarized and otherwise adapted to the use of teachers and home-makers. Moreover, experiments should be undertaken in order to solve still other questions. To do this a sum of money is needed and for such worthy ends we should not seek in vain. Let us not add to our other crimes of economic waste that of waste of knowledge for which we are suffering and which lies close at hand. We need this permanent national agency for home betterment. The responsibility for the raising of this fund lies first on the members of this Association and the subscribers to the *Journal*. The Fund Committee have asked all such to become local committees to canvass personally for the Fund, to organize observance of Home Economics Day in schools and to extend the sale of the Richards Calendar.

HOME ECONOMICS DAY, DECEMBER 3, 1912.

SUGGESTIONS FOR ITS OBSERVANCE.

Schools, colleges, women's clubs and other institutions and organizations, are invited to observe December 3, 1912, or some early day in place thereof, as "Home Economics Day," to celebrate the widespread adoption of household science and arts as a subject of instruction, and especially to point out some of the lines along which progress has still to be made both in education and in household practice.

December 3, 1912, is the seventieth anniversary of the birth of Ellen H. Richards (1842-1911), late of the Massachusetts Institute of Technology, who for forty years was the leader in the Home Economics movement, and to whom more than any one person we are indebted for the modern movement to make the common matters of food, clothing, and shelter the object of scientific study in the laboratory, of instruction in public schools, high schools, and colleges, of consideration by women's clubs, and other civic organizations, and of public concern and action as reflected in protective legislation and municipal regulation.

It is suggested that Home Economics teachers everywhere organize a fitting observance of the day by planning a program which scholars and students may carry out, presenting to their fellows and perhaps

to the public, something of the history and present status of the home economics movement. Suggestions for topics, essays, and informal talks are given below. Women's clubs and other civic societies are also urged to make this an occasion of increased knowledge of the Home Economics idea, its place in education, and its significance for a better home life, by a similar program, emphasizing such instruction in their local schools and more adequate support for instruction in their state college or university, and more extensive plans for popular education to reach every home in country or city.

A national movement now under way to raise a permanent fund of \$100,000 as an Ellen H. Richards Memorial, to be used for scientific investigation in Home Economics, and for publication, thus continuing her work of leadership, may well be given publicity on Home Economics Day. Where conditions permit, committees of students may, perhaps outside school hours, organize an entertainment, or other appropriate enterprise, the proceeds of which can go to this permanent fund for home betterment. A benefit performance or lecture may be organized by clubs; and in all cases, perhaps, sales of the Richards Home Economics Calendar may be undertaken (the proceeds of which go to the Fund—see below). In some cases admission can be charged to the Home Economics Day observance.

SUGGESTIONS FOR HOME ECONOMICS DAY PROGRAM.

Essay: The First Home Economist—Xenophon, 445-355 B.C. Author of "Oeconomicus." See "Xenophon" in Encyclopedia; and translation of this charming description of Greek housekeeping in Bohn's Classical Library; read selections from Chapters III, VII, VIII, IX.

Essay: An American Home Scientist—Benjamin Thompson, Count Rumford, 1753-1814. One of the greatest scientists of his time, who considered as of the highest importance careful scientific studies of kitchen ranges and cooking stoves, cooking utensils, fuel economy, baking of bread, "art of making coffee," making of soup, design of fireplaces to prevent smoking, heating and lighting of houses, hygiene of bathing, and other household problems. See Encyclopedia, "Rumford," and "Benjamin Thompson;" in large libraries, consult "Life of Rumford," especially Volume IV and "Essays of Rumford."

Essay: Our First Home Economics Book—Miss Catherine E. Beecher, 1800-1878, author of "A Treatise on Domestic Economy," 1841; also, "Domestic Receipt Book," 1842; "Health and Happiness," etc., and with her sister, Harriet Beecher Stowe, "The American Woman's Home and Principles of Domestic Science," 1869; Principal of Girls' School at Hartford, 1822-32; urged that women become teachers, and that all girls be taught domestic economy; founded 1852, American Women's Education Association, establishing higher schools at Milwaukee, Dubuque, and elsewhere, which were to teach Domestic Economy. See her books in libraries; biography in JOURNAL OF HOME ECONOMICS, Baltimore (June, 1912, number, 50 cents).

Essay: Science and the Home—Ellen H. Richards, 1842-1911, Vassar, 1868, Massachusetts Institute of Technology, 1873, where she was instructor in Sanitary Chemistry; Founder of Lake Placid Conference on Home Economics, 1899-1908; American Home Economics Association, 1908; JOURNAL OF HOME ECONOMICS, 1909; author of "Cost of Living," "Chemistry of Foods," "Euthenics," and many other books. For facts of her life, see "Ellen H. Richards and the Home Economics Movement," sent free on request to American Home Economics Association, Baltimore; also "Life of Ellen H. Richards," by C. L. Hunt, published by Whitcomb and Barrows, Boston (\$1.62 postpaid); JOURNAL OF HOME ECONOMICS, Baltimore (October, 1911, number, 50 cents). The Ellen H. Richards Memorial Home Economics Fund, for Research and Publication—secure free circular from American Home Economics Association, Baltimore, Md.

Essay: The Home Economics Movement: It is a development from (1) The Manual Training movement (the value of hand training in general education); (2) vocational education movement (the present proposal that every young person shall be trained to earn a livelihood); (3) the higher technical and professional education (the training for expert leadership, at first in law, theology, and medicine, now applied to every field of service including school philanthropy, and even household). Sewing of samplers in Colonial schools; first college courses in home economics, Iowa State College, 1872, Kansas State College, 1873, University of Illinois, 1874; there were four courses in state colleges in 1890, and 30 in 1900, and in 1911 college courses in 130 institutions; private cooking schools in Eastern cities from 1873 on, and the first public school kitchen in Boston in 1887; the training of teachers begins in Teachers College (now part of Columbia University) in 1867, and Boston Normal School of Household Arts, 1888, and in 1911 there are 100 normal school courses for teachers; home economics now taught in most city schools, in over 700 high schools (1911), and in many rural schools.

Essay: What Home Economics Stands for: "Home Economics as a distinctive subject of instruction includes the economic, sanitary and aesthetic aspects of food, clothing and shelter as connected with their selection, preparation and use by the family in the home or by other groups of people. Instruction in this subject should be based on the laws of the physical, biological and sociological sciences." Its platform as stated, by Mrs. Richards: "Home Economics stands for: (1) The ideal of home life for today unhampered by the traditions of the past; (2) the utilization of all the resources of modern science to improve the home life; (3) the freedom of the home from the dominance of things and their due subordination to ideals; (4) the simplicity in material surroundings which will most free the spirit for the more important and permanent interests of the home and society."

Essay: What the National Government is Doing for the Home: in U. S. Department of Agriculture—Nutrition Investigations (write for information) and publications (write to Superintendent of Documents, Washington, for price list of publications on food and diet); the national pure food law (secure copy by addressing Secretary of Agriculture); U. S. Bureau of Education, Washington, and U. S. Children's Bureau, Washington (write for information); the federal land grant of 1862 helps support the state colleges, and annual grants are given for research in agriculture. Shall not the national government do more for the home? (1) Page-Wilson bill proposes aid for high schools, normal schools, and extension teaching, in *Home Economics*, industrial arts, agriculture (write Hon. Carroll S. Page, U. S. Senate,

Washington, for copy); (2) Lever bill proposes aid to extension teaching in *Home Economics* and agriculture (write Representative Lever, U. S. House of Representatives); (3) Smoot bill proposes aid for *Home Economics* research and publication in each state agricultural station (write Senator Smoot, U. S. Senate); (4) Wilson bill proposes a federal bureau of Domestic Science (write Hon. Wm. W. Wilson, U. S. House of Representatives); the U. S. Bureau of Education wishes an additional appropriation for experts in *Home Economics* and industrial education (write Bureau for information).

Essay: What of Home Economics in our state? Write to State Education Department at Capital city for information regarding domestic science in elementary and high schools; to state colleges and other women's colleges regarding college courses in Home Economics, and extension courses for home study; to state normal schools; to chairman of state federation of women's clubs regarding club study of home problems. What are the next steps in progress? Is there a state syllabus for schools? Are bulletins printed by state college for home women? Should there be money for a state household experiment station? For extension education to reach every home with practical help? What advance could be made in the local community?

The Ellen H. Richards Home Economics Calendar for 1913, a decorative wall calendar, twelve engravings, portraits of Mrs. Richards, and illustrations of her laboratories and other views, together with twelve quotations of the Richards philosophy of home and life. 50 cents, post paid. Address: American Home Economics Association, Roland Park, Baltimore. In observing Home Economics Day, committees are urged to extend the sale of the calendar as all proceeds go to the Memorial Fund. Sample on request; then take orders and send names, addresses, and money, whereupon calendars will be sent by mail direct to individual purchasers, without further trouble to local committees.

Lantern slides for lectures illustrating, (a) Mrs. Richards' life and work, (b) schools, colleges, and higher institutions teaching Home Economics, e.g., Simmons College, Chicago, Illinois, Wisconsin, Toronto, Teachers College, Pratt, Drexel, Mechanics Institute, and many others, can be furnished at 50 cents each, with 20 per cent reduction for ten or more.

Local Home Economics Committee: Schools and colleges, students' societies, women's clubs and other organizations are invited to form local committees to coöperate with the Ellen H. Richards Home Economics Fund, to plan the observance of Home Economics Day, and to secure contributions to establish this permanent agency for furthering the Home Economics idea and for bettering home life.

Information: Address: American Home Economics Association, Roland Park, Baltimore, Md., or Richards Memorial Committee as below.

The American Home Economics Association: President, Isabel Bevier, University of Illinois; Vice-Presidents, Charles F. Langworthy, U. S. Department of Agriculture, Washington, D. C.; Martha Van Rensselaer, Cornell University, Ithaca N. Y.; Abby L. Marlatt, University of Wisconsin, Madison; Treasurer, Howard L. Knight, Washington, D. C.; Secretary, Benjamin R. Andrews, Teachers College, Columbia University, New York City.

Richards Fund Committee: Mrs. Caroline Weeks Barrett, Isabel Hyams, Charles F. Langworthy, Ednah A. Rich, Benjamin R. Andrews, Secretary-Treasurer, address Teachers College, New York City.

ANNUAL MEETING AMERICAN HOME ECONOMICS ASSOCIATION.

The annual meeting of the American Home Economics Association will be held at Simmons College, Boston, Mass., Tuesday, December 31, 1912, to be preceded by the annual dinner on Monday evening, December 30. The Association will be the guests of the New England Association at the Boston meeting. The program follows:

Monday, December 30, 6 p.m. Informal dinner under the auspices of the New England Association. Tickets \$1.25, may be secured in advance by addressing Miss Dodd, Garland School, Boston, Mass.

Roll call and reports from the field with informal discussion.

Tuesday, December 31, 9.30 a.m. Meeting at Simmons College: Papers: "Research Related to Household Economics," Miss Kingsbury, Simmons College, and Director of Research, Women's Industrial and Educational Union, Boston. "Household Economics and Social Service," Mrs. Eva W. White, of Elizabeth Peabody House and Massachusetts State Education Department.

"A College Course in Household Economics," Benjamin R. Andrews, Teachers College, Columbia University.

1 p.m. Luncheon at the Simmons College Refectory, followed by an address by Dr. Snedden, Massachusetts Commissioner of Education.

3 p.m. Annual Business Meeting.

Report of president, Miss Isabel Bevier, University of Illinois.

Report of Editorial Board, Dr. C. F. Langworthy, U. S. Department of Agriculture.

Report of Administration Section, Miss Sarah Louise Arnold, Simmons College, Chairman.

Report of Housekeepers Section, Mrs. Lyndan Evans, Chairman.

Report of Ellen H. Richards Memorial Fund, Dr. B. R. Andrews, Chairman.

Report of Committee on Constitution and By-Laws, Miss Adelaide Nutting, Chairman.

Report of Committee on Publicity and Progress, Mr. Maurice Le Bosquet, Chairman.

Report of Committee on Legislation.

Report of Committee on Nominations and Elections, Prof. Henry C. Sherman, Chairman.

8 p.m. "Municipal and Business Relations of Home Economics." Speakers to be announced later.

The annual meeting of 1913 will be held the last week of June, 1913, at Cornell University, Ithaca, New York.

BIBLIOGRAPHY OF CURRENT LITERATURE.

OCTOBER 1, 1912.

I. FOOD.

Composition and Analyses of Desiccated Milk and Cream. Fleming, *Jour. Indus. and Eng. Chem.*, vol. 4, p. 543.

The Determination of Benzaldehyde in Maraschino Cherries and Maraschino Liqueur. A. G. Woodman and Lewis Davis, *Jour. Indus. and Eng. Chem.*, August, pp. 588-589.

Commercial Cinnamon and Cassia. H. E. Sindall, *Jour. Indus. and Eng. Chem.*, August, p. 590.

A Modification of the Babcock Test as applied to the Estimation of Fat in Desiccated Milk. Redmond, *Jour. Indus. and Eng. Chem.*, vol. 4, p. 544.

The Detection of Formic Acid in Fruit Products. T. L. Shannon, *Jour. Indus. and Eng. Chem.*, vol. 4, p. 526.

Alteration and Preservation of Eggs. M. de Laroquette, *Chem. Abs.*, September 10, p. 2471 (cf., *L'ind. beurre*, vol. 50, p. 600).

On the Use of Saccharin in Foods. Food Inspection Decision 146, U. S. Dept. of Agr.

Detection of Prussian Blue in Tea. Fred West, *Jour. Indus. and Eng. Chem.*, vol. 4, p. 528.

Detection of Adulteration in Paprika. A. V. Sigmond and M. Vuk, *Chem. Abs.*, September 10, p. 2473 (cf. *Zeit. Nahr. u. Genussm.*, vol. 23, p. 387).

Ground Ginger. A. McGill, *Lab. Inland Rev. Dept., Ottawa, Canada, Bull.* 236.

The Purines of Muscle. C. B. Bennett, *Jour. Biol. Chem.*, vol. 11, pp. 221-234.

Egg and Meat Pastes. Utz, *Chem. Abs.*, August 20, p. 2265 (cf. *Pharm. Zentralhalle*, vol. 53, p. 35).

Volna, a Meat Substitute. Kochs, *Chem. Abs.*, August 20, p. 2265 (cf. *Pharm. Zentralhalle*, vol. 52, pp. 1344-1345).

Chemical Industry of "Concentrated Broths." Issoglio, *Ind. Chim.*, 12, 129, 1912. Analyses.

A Standard for Vinegar. *Brit. Food Jour.*, vol. 14, p. 6.

On the Starch of Glutinous Rice and its Hydrolysis by Diastase. Y. Tanaka, *Jour. Indus. and Eng. Chem.*, August, pp. 578-581.

Influence of the Hydrogen Ion Concentration on the Baking Value of Flour. H. Jessen-Hansen, *Compt. rend. lab. Carlsberg*, 1912, 10, 170-206. Reported in *Jour. Chem. Soc.*, London, Eng., July, 1912, p. 675.

The Antiseptic and Bactericidal Properties of Egg-White. L. F. Rettger and J. A. Sperry, *Jour. Med. Research*, vol. 26, p. 55.

Concerning the Sugar Content of Watermelons. C. P. Sherwin and C. P. May, *Jour. Indus. and Eng. Chem.*, August, p. 585.

A Study of Ropy Bread. Anna W. Williams. *Biochem. Bull.*, June, pp. 529-535.

DEPARTMENT

OF

HOUSEHOLD SCIENCE

2. NUTRITION.

Nutrition Experiments with Completely Hydrolized Proteins and with Ammonium Salts. E. Abderhalden, *Chem. Abs.*, August 20, p. 2100 (cf. *Zeit. Physiol. Chem.*, vol. 78, pp. 1-27).

Studies on the Physiology of Digestion. III. The Secretion of Gastric Juice when the Chlorine Supply in the Body is Lessened. R. Rosemann, *Chem. Abs.*, August 10, p. 2100 (cf. *Zeit. Physiol. Chem.*, vol. 10, p. 522).

The Excretion Period of Nitrogen, Sulphur and Carbon after Ingestion of Proteins and their Decomposition Products. Wolf and Oesterberg, *Chem. Abs.*, August 10, p. 2096 (cf. *Biochem. Zeit.*, vol. 40, pp. 193-276).

Growth and Maintenance on Purely Artificial Diets. T. B. Osborne and L. B. Mendel, *Proc. Soc. Exp. Biol. Med.*, vol. 9, p. 72.

The Proteins. D. D. Van Slyke, *N. Y. Med. Jour.*, August 10, no. 6.

The Role of Gliadin in Nutrition. T. B. Osborne and L. B. Mendel, *Jour. Biol. Chem.*, September, pp. 473, 511.

The Amino-Acid Nitrogen of the Blood. Preliminary Experiments on Protein Assimilation. D. D. Van Slyke and G. M. Meyer, *Jour. Biol. Chem.*, September, pp. 399-411.

Protein Metabolism in Experimental Diabetes. A. I. Ringer, *Jour. Biol. Chem.*, September, pp. 431-447. On the protein-sparing power of carbohydrates and fats.

Lectures on the Herter Foundation. The Proteins. Kossel, *Johns Hopkins Hosp. Bull.*, vol. 23, p. 76.

Animal Calorimetry. II. Metabolism of the Dog Following the Ingestion of Meat in Large Quantity. Williams, Riche and Lusk, *Jour. Biol. Chem.*, September, pp. 349-377.

Animal Calorimetry. III. Metabolism after Ingestion of Dextrose and Fat. Graham Lusk, *Jour. Biol. Chem.*, October, pp. 27-49.

Animal Calorimetry. IV. Observations on the Absorption of Dextrose and the effect it has upon the composition of the blood. G. Fisher and M. B. Wishart, *Jour. Biol. Chem.*, October, pp. 49-63.

Fasting Studies. VII. The Putrefaction in the Intestine of a Man during Fasting and during Subsequent Periods of Low and High Protein Ingestion. C. P. Sherwin and P. B. Hawk, *Jour. Biol. Chem.*, vol. 11, pp. 169-177.

The Behavior of Fat-soluble Dyes and Stained Fat in the Animal Organism. L. B. Mendel and Amy L. Daniels, *Jour. Biol. Chem.*, October, pp. 71-97.

Green Vegetables and Their Uses in the Diet. C. F. Langworthy, *Separate* 582, *Yearbook, 1911, U. S. Dept. of Agr.*

The Nature of Hunger. W. B. Cannon, *Pop. Sc. Mo.*, September, pp. 291-308.

Studies in the Nutrition and Digestion of Infants. Maynard Ladd, *Arch. Pediatrics*, May, pp. 324-350.

The Dextrins and Maltose in Infant Feeding. T. S. Southworth, *Arch. Pediatrics*, September, pp. 646-654.

Note on the Influence of Food upon the Intestinal Flora of Infants. A. Friedlander, Jr., and J. V. Greenebaum, *Arch. Pediatrics*, September, pp. 673-682.

The Care of Infants. *Jour. Am. Med. Assn.*, August 17, pp. 542-543; August 31, pp. 720-721; September 7, pp. 797-798.

Requisite Standards for Raw Material in the Successful Substitute Feeding of Infants. H. L. Coit, *Arch. Pediatrics*, June, no. 6.

Simple Methods of Infant Feeding. David J. Levy, M.D., Detroit, Mich., *Jour. Amer. Med. Assn.*, June 22, vol. 58, no. 25, pp. 1925-1927.

The Utility of the Vacuum Bottle in Infant-Feeding. F. D. Tonney, A. B., M.D. and H. H. Pillinger, M.D., Chicago, *Jour. Amer. Med. Assn.*, May 18, vol. 58, no. 20, pp. 1495-1496.

Nitrogen and Nuclein Metabolism in Gout. P. A. Levene and Leo Kristeller, *Jour. Exp. Med.*, September, pp. 303-315.

Wheat Bran. A. E. Gallant, *N. Y. Med. Jour.*, August 31, no. 9. Use in constipation.

Diet in Tuberculosis. W. B. Kendall, *Jour. Am. Med. Assn.*, September 7, p. 826 (cf. *Canadian Med. Assn. Jour.*, August 11, no. 8).

Diet and Hygiene in Diseases of the Skin. L. D. Bulkley, *Jour. Am. Med. Assn.*, August 17, pp. 535-538.

Five Years' Experience with the High-Calory Diet in Typhoid. Warren Coleman, *Jour. Am. Med. Assn.*, August 3, pp. 363-367.

The Absorption of Food in Typhoid Fever. Du Bois, *Arch. Intern. Med.*, September, p. 177.

Recent Japanese Investigations on Rice Bran in Relation to Disease. Editorial, *Jour. Am. Med. Assn.*, September 14, pp. 883-884.

Beriberi Caused by Fine White Flour. John M. Little, M.D., St. Anthony, Newfoundland, *Jour. Amer. Med. Assn.*, June 29, vol. 58, no. 26, pp. 2029-2030.

A Class Experiment to Illustrate the Synthetic Action of Enzymes. W. M. Bayliss, *Proc. Physiol. Soc., Jour. Physiol.*, 43, pp. 40-42.

Physiology of Water and Table Salt. O. Cohnheim, *Chem. Abs.*, August 10, p. 2095 (cf. *Zeit. Physiol. Chem.*, vol. 76, pp. 62-88).

Laboratory Studies of Rennin. A. Zimmermann, *Jour. Indus. and Eng. Chem.*, vol. 4, p. 506.

Studies in Bacterial Metabolism. VII. A. I. Kendall and C. J. Farmer, *Jour. Biol. Chem.*, October, pp. 63-71.

3. HYGIENE AND SANITATION.

The Cleansing Action of Soap. E. Feilmann, *Chem. World*, vol. 1, p. 46.

Rules for Cleaning. Mary Urie Watson, *Cornell Reading Course*, September 1, vol. 1, no. 23.

The Preservation of Food in the Home. Part III. *Cornell Reading Course*, August 1, 1912, vol. 1, no. 21.

The Preservation of Food in the Home. Part II. Flora Rose, *Cornell Reading Course*, July 1, 1912, vol. 1, no. 19.

Results of Antityphoid Vaccination in the Army in 1911, and its Suitability for Use in Civic Communities. Frederick F. Russell, M.D., Washington, D. C., *Jour. Amer. Med. Assn.*, May 4, vol. 58, no. 18, pp. 1331-1336.

Public Health Report, May 10, 1912. Report of N. Y. Milk Committee. Editorial in *Jour. Amer. Med. Assn.*, May 18, 1912, pp. 1515-1516.

Recent Advances in the Treatment of Pulmonary Tuberculosis by Air, Food and Rest. Lawrason Brown, M.D., Trudeau, N. Y., *Jour. Amer. Med. Assn.*, June 1, 1912, vol. 58, no. 22, pp. 1678-1681.

The Effect of Sulfurous Acid on Fermentative Organisms. W. V. Cruess, *Jour. Indus. and Eng. Chem.*, August, pp. 581-585.

Tests of the Efficiency of Pasteurization of Milk under Practical Conditions. *Jour. Med. Research*, vol. 26, p. 127, 1912.

Types of Bacteria Carried by City Flies. J. C. Torrey, *Jour. Infect. Dis.*, vol. 10, p. 166.

A Concealed Danger of Lead Poisoning? F. M. Litterscheid, *Chem. Abs.*, August 10, p. 2120 (from *Z. Nahr. Genussm.*, vol. 23, p. 440). Kitchen utensils used for heating water.

Stuffy Rooms. Leonard Hill, *Pop. Sc. Mo.*, October, pp. 374-397.

A Quantitative Study of the Bacteria in City Dust. C. E. A. Winslow and I. J. Kligler, *Am. Jour. Pub. Health*, September, pp. 663-702.

First Aid in the Family. *Jour. Amer. Med. Assn.*, October 5, pp. 1291-1293.

Power of Potable Water to Dissolve Lead. Pieter A. Meerburg, *Chem. Weekblad*, 1912, 9, pp. 494-497. Reported in *Jour. Chem. Soc.*, London, Eng., August, 1912, p. 762.

4. TEXTILES.

The Dyestuffs of the Ancients. C. E. Pellew, *Handicraft*, August, 1912, pp. 63-71.

The Dyestuffs of our Ancestors. C. E. Pellew, *Handicraft*, September-October, pp. 87-96.

The Permanent Fireproofing of Cotton Goods. W. H. Perkin, *Pop. Sc. Mo.*, October, pp. 397-409.

Influence of Washing Materials Containing Oxygen upon the Fibers. E. Luksch, *Chem. Abs.*, September 10, p. 2552 (cf. *Seifender Ztg.*, vol. 39, p. 3).

5. EDUCATION AND SOCIAL WORK.

The Home School of Providence, Rhode Island. Ada W. Trowbridge, *Vocational Education*, September, pp. 13-28.

Women—The Larger Housekeeping. Mabel Potter Daggett, *World's Work*, October, pp. 665-670.

Report of the Committee on Markets, Prices and Costs of the N. Y. State Food Investigating Commission, August 1, 1912.

First Aid to the Home Budget Maker. Martha Bensley Bruère, *Outlook*, September 21, pp. 121-127.

The First International Eugenics Congress. Raymond Pearl, Ph.D., *The Independent*, September 12, 1912, vol. 73, no. 3328, pp. 614-616.

A Stable Monetary Yardstick the Remedy for the Rising Cost of Living. Irving Fisher, Ph.D., *The Independent*, September 26, 1912, vol. 73, no. 3330.

The Kitchen—the Homemaker's Laboratory. Elizabeth McCracken, *Outlook*, October 12, pp. 305-311.

Educating the Consumer. Martha Bensley Bruère, *Outlook*, September 7, pp. 29-34.

Industrial Education in the Philippines. *Science*, September 27, pp. 396-397.

NEWS FROM THE FIELD.

The Commonwealth Club of California, through its chairman, Mr. R. S. Gray, has inaugurated a movement looking to the organization and establishment at the Panama-Pacific Exposition in 1915, of an exhibit, a so-called Social Museum representing the latest results of human progress in sociology. We quote concerning the Harvard Museum from publication no. 4 of the Department of Social Ethics in Harvard University, entitled *The Social Museum as an Instrument of University Teaching* by Francis G. Peabody:

**Proposed
Sociological
Exhibit for
Panama-
Pacific Expo-
sition.**

"May not the phenomena of social evolution, like those of physical evolution, be inductively approached? Is not the chief hindrance of social progress to be found in the failure to apply to the facts and movements of society the method of science, as though emotion and sentimentalism could be substitutes for accurate observation and prudent generalization? Finally, there was begun in 1903 the Social Museum, to promote investigations of modern social conditions, and to direct the amelioration of industrial and social life. Such a museum is undertaken on the assumption that the most immediate need of students concerned with the social question is, not merely enthusiasm or sympathy or self-sacrifice or money, but wisdom, discretion, the scientific interpretation and comparison of facts; and that this application of the inductive method may be encouraged by setting before the student in graphical illustration the evidence of progress in various countries and putting at his command the fund of experience accumulated in various parts of the world. The remoteness of the United States from other countries, and the brevity of its social history make this provision of illustrative material all the more necessary. Problems of the social order, which elsewhere represent gradual processes of social evolution, have presented themselves in the United States with startling abruptness and in dimensions of portentous magnitude, and put a sudden strain on political and social wisdom. . . . These and many other social problems have in large measure taken Americans by surprise, and the science of society cannot safely proceed without new observation, comparison and appropriation of the experience of the world. The same demand for comparative sociology is laid, in various degrees, on other countries. The Harvard Museum is, it is believed, the first attempt to collect the social experience of the world as material for university teaching, and to provide guidance for academic inquiries into the study of social progress."

It is with these same ideas, on a larger basis, that the Commonwealth Club is making its plea for such a Museum at the Panama-Pacific Exposition. Various universities, scientific bodies and civic organizations have been asked to interest themselves in this great sociological exhibit. Speaking of the matter editorially one of the San Francisco papers says: "Heretofore world's fairs have been commemorative of some historical event or physical achievement. Here is an opportunity to make the Panama-Pacific Exposition something more than a visual chronicle

of mechanical progress—to make it a living example of social development of the great things that are being done in the world, of the things that indicate that “the people that walked in darkness have seen a great light:” and that light is the realization of the great truth that each stratum of society is dependent upon every other, and that it is not only the privilege but the duty of each to help the one below to a greater enjoyment of the gift of life.”

It has also been proposed to call a meeting of a world-wide “Institute of Social Science” to meet on June 15, 1915, the seven hundredth anniversary of the date of Magna Carta.

The National Conservation Exposition will be held in the fall of 1913, at Knoxville, Tenn. This exposition is planned in accordance with exposition history, especially to illustrate the modern idea of forecasting prospective National Conservation Ex- development. It is intended to have exhibits of the resources in lands, forests, water, and mineral, and going one step farther position. to have exhibits of our natural human resources. Under human efficiency exhibits on health, education, and Home Economics will be made. The Home Economics program plans to exhibit (a) a model small dwelling properly furnished and cared for; (b) labor saving devices in the home; (c) demonstration meals publicly prepared and served by the domestic science classes of high schools and universities; (d) demonstrations of meat cuts; (e) demonstration of proper methods in marketing; (f) samples in domestic house-keeping; and (g) lectures on Home Economics.

Miss Rosa Bouton, who has been head of the Home Economics Department in the University of Nebraska since its organization fourteen years ago, has recently resigned.

Miss Bouton's Work in Nebraska. The story of the simple beginning and rapid growth of this western department of Home Economics is only one of many such interesting tales which might be related. The work in Nebraska, however, is peculiarly the result of one woman's initiative. Were Mrs. Ellen H. Richards living, she could, as no one else, express the spirit of Miss Bouton's endeavor in this pioneer field, for Mrs. Richards was herself a pioneer. From her Miss Bouton received encouragement and inspiration at a time when educators were skeptical about this new subject in the curriculum. Aside from her work in connection with the University, Miss Bouton was interested in outside activities, and gave of her time and strength freely. Among these were the organization of a State Home Economics Association, plans for boys' and girls' clubs, lectures before farmers' institutes and women's clubs, and the introduction of domestic science in the Lincoln city schools and later in high schools throughout the state. Miss Bouton has published two in the series of Home Study Bulletins for the University of Nebraska, viz., “Convenient Kitchens” and “Cereals and How to Cook Them.”

We quote in part an appreciative article which appeared in the *Nebraska State Journal* of August 12, 1912:

“Miss Bouton came to Lincoln to study chemistry with Professor Nicholson, whom she had known at the Nebraska State Normal in Peru. She received two degrees from the University of Nebraska, the first with the class of 1891, and the

master's degree in 1903, both being won while she was teaching in the department of chemistry. When she graduated in 1891 she was made a regular member of the teaching force for the chemistry department. The following year she introduced a course in chemistry of foods, but it was not until 1898 that the university authorities were finally aroused to the need of general domestic training for girls. In the meantime Miss Bouton had been dividing her time between the regular classes in chemistry and those for the study of domestic chemistry, but on account of a petition from the Association of Collegiate Alumnae Miss Bouton was informed in that year that she had permission to start a School of Domestic Science, provided that she could do the teaching herself, as "money was harder to get than blood out of dry bones." Accordingly, after spending the summer in study at Boston at her own expense, the teacher of chemistry became in 1898 the sole instructor for the School of Domestic Science. A room was obtained in Mechanic Arts' Hall, where cupboards, table, a sink, and a stove were installed. To equip the laboratory and provide supplies there was an appropriation of just \$15, which was eked out by a small loan from the department of chemistry.

"The school of Domestic Science at this time was a two years' course, open to any woman without special college requirements. During the first year there were seventeen students, ten in the school and seven from the university classes. In 1912 the total number of students in the Home Economics Department, as the branch is now called, had increased to 310, 220 of these being in the college classes and ninety in the School of Agriculture.

"As the school progressed, new branches of study were urgently needed, but the money to secure teachers with the proper training was never available. For instance, the application for the addition of domestic art was granted, but Miss Bouton was again told that there was no money for a teacher of domestic art, and that if she wished to introduce such a course she must teach it. Accordingly she took another trip east and learned enough of the methods of other colleges to be able to teach the classes until a special teacher could be obtained. Thus, step by step, the course has been enlarged and broadened.

"In 1906 an appropriation for the present building was secured. As the knowledge of the requirements for such a building was decidedly vague in the middle west, before the adoption of plans Miss Bouton visited successful schools of the kind, made a careful study of architectural features and of materials, the expense of travel being borne by herself. Everything about the building was chosen to serve as an object-lesson to the students. The sinks in the kitchens were made of various material, to demonstrate practically the quality of different substances for the purpose. In the furnishing of the sleeping and living rooms, examples of hard woods were introduced for educative purposes. The building was first used in 1908, and the first summer school was held there in 1909. Since that time the building has been regularly in use for eleven months of the year.

"In 1906 the course of two years was changed to four, and the name became the Home Economics Group of the College of Agriculture. The building and equipment are now valued at \$70,000 and the teaching force includes eight people. There will be many to credit with due honors for the future growth of the work, but there was but one pioneer to establish it."

To the Women's Clubs of Washington: The Committee on Civics and Sanitation of the Housekeepers' Alliance is sending this appeal to all the Women's Clubs in

Washington, asking if they will not join us in our efforts to secure wrapped bread, by calling the attention of their members to the out by the insanitary conditions under which our bread is handled after it Housekeep- leaves the bakers' oven.

ers' Alliance A moment's thought will convince anyone that food which of Washing- can neither be washed nor recooked before eating, should be so ton, D. C. protected that dirt, dust, disease germs and flies cannot have access to it.

Even though the bakery wagons are enclosed at sides and rear, the front is often open, so gusts of germ laden dust blow onto the bread.

When it is taken out it is piled into a basket by the driver, who has just thrown down the dirty reins, and sometimes he disobeys orders and carries it in his arms, pressed against his soiled clothing.

It is often piled on the open counter, in grocery or market, where persons passing rub against it, and purchasers lay their soiled shopping bags or bundles on it, or handle it over to determine the texture.

When the store or market is swept, there is a fresh consignment of dust and germs, as though there were not enough already.

Bread passes through about six pairs of hands on its way to our tables. Those handling it may have colds, influenza, grippe, tuberculosis, or vice diseases, and leave the germs of these diseases clinging to it.

Notice how soiled the hands of your marketman or groceryman are as he handles your bread.

Many cities and even villages, where the bread is shipped in from a distance, have wrapped bread, and the price is not increased or the weight of the loaf diminished.

If the bread is replaced in the paraffine paper, it solves the problem of stale bread in the kitchen, as it keeps fresh so much longer. The Alliance has been trying for the past year to secure some wrapped bread in the city.

We visited some of the large bakeries, and found them in a sanitary condition, and felt their bread was more hygienic than that baked in the average kitchen. The one thing needful is that it should be wrapped before it leaves the bakery.

Flies are with us a good part of the year and it is a well established fact that flies carry typhoid fever and intestinal disease germs with them, and expose us to these diseases, when they crawl over our food.

Flies killed more soldiers in the Spanish War than all the bullets of the enemy! And yet we calmly and deliberately buy bread, and other foods, with swarms of flies crawling over it! And how many of us ever remonstrate with our dealers?

There is an ordinance in the District requiring meats and fruits to be protected from flies. Then why do we submit to the insanitary conditions that prevail here in fly time? When public opinion demands it, this ordinance will be complied with.

Dealers who are using ice-cooled glass cases for their meats, tell us the saving more than pays the cost of the cases. One new model with sliding doors at the top is proving most satisfactory. The meat is kept cold even when the door is left open, as the cold air falls to the bottom of the case.

One of our large bakers in town has under consideration a new bread wrapping machine which is soon to be placed on the market. He hopes to install one of them in his bakery within a few months. The Housekeepers' Alliance has promised to back the undertaking by advertising his wrapped bread. The press has been very helpful in giving publicity to our efforts, and in helping to create an interest in the matter.

Pure food handled in a sanitary manner will do much towards eliminating preventable diseases.

GEORGIA ROBERTSON,
Chairman of Committee on
Civics and Sanitation of the Housekeepers' Alliance.

The following lecture course for the season 1912-1913 has been announced by the Home Economics Section of the Maryland State Federation of Women's Clubs:

Maryland State Federation of Women's Clubs.	Thursday, November 7, Weights and Measures, Dr. F. Reichmann, superintendent of weights and measures, State of New York;
	Thursday, December 5, Household Accounts with Simplified Methods, Mr. H. L. Stevenson, auditor, Bell Telephone Company;
	Thursday, January 9, Round Table on Weights and Measures with Reports on Use of Scales by Housekeepers, led by Mrs. John J. Abel;
	Thursday, February 6, Marketing—With a Report of a Baltimore Coöperative Buying Club, Mrs. Anna B. Scott, <i>Philadelphia North American</i> ;
	Thursday, March 6, Savings—Saving Banks, Mr. Edward L. Robinson; Life Insurance, Mr. C. T. Thurman; Building and Loan Associations, Mr. John Hannibal;
	Thursday, April 3, Laws of Inheritance in Maryland, Laws Affecting Domestic Service in Maryland, Hon. Alfred S. Niles.

The Home Economics Association of Connecticut was formed in October, 1909, for the purpose of bringing about greater coöperation among the departments of domestic science and domestic art in the schools of the state. The late Mrs. Ellen H. Richards, first president of the American Home Economics Association addressed the preliminary meeting. Two regular meetings are held each year. The May meeting can be held in any city or town in the state. In October a meeting is held alternately in Hartford and New Haven in connection with the State Teachers' Convention.

The Association has been fortunate in obtaining interesting and enthusiastic speakers for each meeting. The annual spring meeting was held in Waterbury at the Institute of Craft and Industry. The subject of the day was "The Relation of the Teacher of Household Arts to the Home of the Pupils."

The Association has been asked to have an exhibit at the Connecticut Fair, Charter Oak Park, Hartford, Conn. This exhibit will be in connection with the Child Welfare section.

The school authorities of the city of Boston have taken action to name one of the new public schools of the city "The Ellen H. Richards School." A portrait of Mrs. Richards has been presented to the school by some of her Boston friends.

A notable exhibit has been announced to take place in Chicago at the First Regiment Armory, November 18 to 23, for the benefit of the school of Domestic Arts and Science. On the large floor space that has been rented, **Home Makers** firms representing household appliances, foods, etc., will exhibit. **Exhibit and Conference.** An interesting program will be furnished by well known lecturers, and various organizations as the Chicago Woman's Club and the College Club will serve tea during the afternoons of the week.

An admittance fee will be charged and it is hoped to realize a large sum to meet the needs of the school which was formerly the Woman's Department of the Armour Institute.

A portrait of Mrs. Adelaide Hoodless was presented to the Macdonald Institute on October 3 by the Women's Institutes of Ontario. Accompanying the portrait was a bronze tablet, suitably inscribed, presented by the former students of the Ontario Normal School of Domestic Science and Art and of the Macdonald Institute. To Mrs. Hoodless above anyone else do the Ontario Women's Institutes, now so well known in all parts of the country, owe their origin. An account of these Institutes will appear shortly in the JOURNAL. In addition to being the originator of the Women's Institutes idea, Mrs. Hoodless was pioneer in the introduction of household science and manual training into the schools of Canada, and it was largely through the efforts of Mrs. Hoodless that Macdonald Institute was founded in 1903, her efforts in the formation of a normal school of domestic science and art at Hamilton leading to the amalgamation with the Guelph institution. A short account of the life and work of Mrs. Hoodless appeared in the JOURNAL for June, 1910.

A second course in domestic science will be offered the women of Maryland from January 13-18, 1913. The advance program gives the following lectures: **Fibers and Textiles**, Bread Making, Sewing and Dress Planning, House Furnishings, Planning Meals, Mrs. C. W. Foulke of the Ohio State University; **Household Chemistry**, Bacteriology, Dr. C. O. Appleman of the Maryland Agricultural College; **Disposal of Waste**, Dr. W. L. Taliaferro, Maryland Agricultural College; **Fireless Cooker**, Milk, Miss Mary A. Burnite, New York City; and **Ventilation**, Mrs. H. J. Patterson. Visits of inspection have been planned to the laboratory where the serum for hog cholera is prepared, the sewage plant and the dairy barn of the Maryland State Agricultural Experiment Station.

During one month of the summer recess a School of Domestic Science for Women was conducted on the grounds of the Canton Christian College. This school was entirely in charge of some of the Christian College students, and **Canton (China) Christian College.** grew out of a desire on their part to share with their wives and sisters the educational benefits there received. Assistance was given by the Americans on the place and by outside lecturers. The daily program included Bible study, a small amount of academic work, and lectures on such subjects as child study, nursing, cooking, sanitation, physiology, and hygiene.

The laboratory method was used. Single lectures were given on house decoration, the care and feeding of infants, exercise, care of the teeth, etc. The hope is that this beginning may be carried on to a larger and more useful work in years to come.

The School of Practical Arts, Teachers College, Columbia University, offers for 1912-1913, beginning October 21, two evening courses on Textiles consisting of twenty-five sessions. I, Silks. Silk Mixtures and Merchandising. II, Woolens and Worsteds. The first series will be given by Mr. James Chittick, silk manufacturer, author of "Silk Manufacture and Its Problems." Among the topics outlined for the course are: Silk-worm rearing; silk reeling; raw silk; spun silk or schappe; system of counts and numbering; skein-dyeing, and piece-dyeing; fabrication of goods; designing; standard market fabrics; imperfection in goods; silk printing; ribbon manufacturing; pile fabrics; power and its transmission; system for cost verification; management and financing; merchandising. The lectures on Woolens and Worsteds will be given by Mr. Theodor Quasebart, graduate of the Higher Technical School of the Textile Industry at Aachen, Germany, himself a textile designer. Among the topics of this course are: Classification of raw materials; animal fibers; sheep's wool; classification of wools; spinning; designing; finishing and dyeing; cloth construction; general discussions: In regard to mill operation, labor situation, labor troubles, speculation in merchandise, delivery of merchandise, merchandising.

The question of an honorary society for the women at the Michigan Agricultural College has been considered for some time. In 1909-10 letters were sent out regarding such a society, and it was found that none existed. The Omicron Nu, faculty of the Department of Home Economics took up the matter, and finally presented a recommendation, with a proposed constitution to the college faculty which was adopted. The new society is known as Omicron Nu, taken from the Greek, meaning to "manage a household." The object as stated in the constitution is to further scholarship and Home Economics among its members. The constitution is based upon those of Sigma Xi and Phi Beta Kappa, to both of which women are admitted. The Alpha Chapter, as the chapter at the college is called, is in a flourishing condition, and at the first regular meeting of the present scholastic year initiated two faculty members and four seniors. Other colleges have made inquiries and are taking steps towards securing charters. A society of this kind should meet a need in those institutions where Home Economics courses, equivalent to the usual four-year college courses, are offered.

The University of California has recently added two new nutrition courses to the work of the Home Economics department, one Feeding Infants and Children, and the other a seminar on Diets for Institutions, Asylums, etc. Miss Mary E. L. Kissell has been appointed associate professor of domestic art, and her work will include lectures on textiles, household design of primitive peoples, and household design in modern homes.

BOOKS AND LITERATURE.

The Life of Ellen H. Richards. Caroline L. Hunt. Whitcomb and Barrows, Boston. \$1.50.

The biography of Ellen H. Richards is the record of a remarkable life spent during a period of rapid and far-reaching social changes which created a demand for a radical readjustment on the part of individuals, particularly of women, to new conditions. Some readers (and this will include members of the American Home Economics Association and those who are following professionally in the path where Mrs. Richards led) will approach the book with interest centered upon her personality, for such workers feel with gratitude that they are building upon a foundation which she laid and that much of the progress which they are able to make is due to the public opinion which she created and to the removal by her of the barriers of prejudice and conservatism. Others not immediately connected with the movements which she inaugurated and who had no personal contact with her will doubtless take up the book chiefly to learn what light it sheds upon the period in which she lived.

Whatever the mode of approach, readers will hardly fail to be impressed with her power and with the fine adjustment of her activities to the needs of her generation. Those whom the passing of older religious sanctions is setting adrift will be helped to find their bearings as they learn how by "keeping her ears open to the whisperings and her eyes clear for the inner light," she was able to merge a girlhood of strict religious conformity into a womanhood of equally passionate service of humanity. Her steadfast purpose "to keep the body in good condition to do the bidding of the spirit," which was formed while she was in college and which later became the keynote of her teaching, gave vitality and continuity to her inner life in an age of unsettled creeds.

Ellen Swallow Richards was born late in the year 1842 on a farm near an isolated village in northern Massachusetts. At this time, the great industrial changes which later revolutionized women's work had hardly begun to affect the household. Under the tutelage of a mother who was a skillful housekeeper, she was thoroughly trained in all the domestic arts. When, therefore, she urged in later years that instruction in these arts be introduced into the lower schools, it was with full understanding drawn from experience of their practical as well as their educational value. We learn from repeated statements of hers quoted in the book that she believed that household tasks performed in one's youth give a muscular training for which it is difficult to find a substitute in later life. "*Housework*," she said, "is to be prepared for by manual exercise, and *housekeeping* by mental exercise." Again she said, "Intelligence does not make up for lack of early muscle training."

Mrs. Richards' exceptional forcefulness and steadfastness of purpose were first demonstrated by her determination to go to college. Up to the time she was twenty-three, there were no colleges open to women either in New England or in other parts of the eastern United States. In September, 1865, Vassar Female

College, which later became Vassar College, was opened and she immediately began to save money with which to get a college education. She taught school, sewed, made "wax flowers," the then popular form of amateur art work, and became assistant to her father in the village store and post office all with a view to making money. At the same time she was reading and studying, and in the fall of 1868 she was able to enter the junior class of Vassar. During her college course, she wrote long weekly letters to her mother and father giving minute details of the circumstances of her life. Extracts from these letters have been brought together in the book, and form what is perhaps the best record ever published of life in a woman's college during the early years of higher education for women.

Entering college at the age of twenty-six and leaving it at the age of twenty-eight after having made an exceptionally good record in languages and literature, it seems remarkable that Mrs. Richards should not have fallen completely under the spell of that form of education. She was original in thought, however, and soon her critical mind was turned upon the academic training of the times to question its ultimate value. Circumstances helped her to formulate her criticisms. When she returned from college, she found her father struggling with a new business, that of the manufacture of artificial stone, and needing more knowledge of the composition of the materials which he was handling. She had taken all the scientific courses but one offered in Vassar, had had the advantage of training under Maria Mitchell, and also under Prof. Charles Farrar, a chemist who was ahead of his time in his desire to make his science of practical value. But all the scientific instruction then offered in an undergraduate course could carry her only a short way toward a thorough understanding of any one of the sciences, and she immediately began to look about for more thorough instruction in chemistry—a subject in which she had become especially interested. The efforts which she made to open the doors which had hitherto been closed to women, and which finally resulted in her being accepted as a special student in the Massachusetts Institute of Technology, form by no means the least interesting portion of the book. In January, 1871, she began her work there, becoming the first woman to be admitted to any strictly scientific school in America.

Fortunately, shortly after she entered the Institute one of her professors, William Ripley Nichols, was chosen to do the chemical work for an extensive examination of the water supplies of Massachusetts for the State Board of Health (the first board of the kind to be established in the country) and he chose her as his assistant. Thus, she was led to the pursuit of sanitary chemistry to which the greater part of her professional labors in after life were devoted. Because she was so widely known as the leader of the movement for introducing instruction in Home Economics into the schools, she is often thought to have followed this work as a profession but, in reality, her activities in this field were performed in what she was in the habit of calling her "playtime." From 1884 until her death in 1911, she was instructor in sanitary chemistry in the Institute of Technology. During this time, she had an important part in a second and more extensive survey of the waters of the state, which continued for a year and during which time the waters were analyzed monthly. In this survey and in her work as a water analyst, some of it done for fees but much of it solely for the public good, she made a most important contribution to public health.

She had been admitted to the Institute as a special favor but she was not content to enjoy its advantages without endeavoring to secure them for other women.

In 1876, therefore, she began an active campaign for a Woman's Laboratory in connection with the institution. In this, she finally succeeded through the coöperation of an organization of public-spirited women in Boston, known as the Women's Education Association. For eight years from 1876 to 1884, Mrs. Richards not only gave her services to the Woman's Laboratory but contributed to its support an average of a thousand dollars a year from her earnings as an analyst.

It was in 1876 also that she became connected with the first organized attempt in this country to teach by correspondence, "The Society to Encourage Studies at Home."

Repeatedly in her correspondence-teaching she read of study interrupted on account of sickness. To this and her connection with the Woman's Laboratory, which showed her how many girls were physically unable to carry on the work they attempted, may be ascribed her enthusiasm for popularizing the teaching of hygiene. To quote from the biography "Conviction that the world was full of unnecessary sickness, and that men and women were falling far short of the joy of living and of doing which ought to be theirs, grew upon Mrs. Richards with her experiences in the Woman's Laboratory and with her insight through correspondence into the home life of America. With the conviction came the desire to have a part in removing this deplorable handicap. "We must see to that," she once wrote in her diary, after recording a grievous social injustice which had been brought to her attention. She did see to it in the matter of preventable disease, for from the moment of her own conviction she labored unceasingly wherever and with whomsoever she saw an opportunity to improve the material conditions of living. She came in the course of time to be prominently identified with the Home Economics movement. But this was only part of the great, absorbing interest of her life, which included the bettering of conditions in the community, in the school and in the factory, as well as in the home. This larger and more inclusive interest, though neither named nor defined by her until shortly before her death, early took full possession of her powers, and the last thirty years of her life were given to developing the "science of controllable environment," for which she coined the name "Euthenics."

Because of her deep-seated belief that women should look deeper into the nature of the common things of life with which they were constantly dealing, Mrs. Richards endeavored to direct the work in the Woman's Laboratory toward household chemistry. It was while she was making this effort that she was called to Poughkeepsie by Maria Mitchell to address the Woman's Club of that city. There in the winter of 1879 she read a paper on "Chemistry in Relation to Household Economy," which was so much ahead of its time that it could be acceptably delivered before a body of intelligent women today without arousing the criticism that its recommendations were out of date. This address, from which extracts are given in the biography, is only one evidence that Mrs. Richards was far ahead of her time in her thoughts and interests.

Scientific management was also known to Mrs. Richards and practiced long before the term was coined, a fact which is indicated not only by the directions which she gave to students in the laboratory for saving motions but also by the conduct of her own house.

The chapter which deals with Mrs. Richards in her home serves to refute the oft-repeated statement that a woman can not carry on a profession and maintain a satisfactory home at the same time. In June, 1875, Ellen Swallow was married

to Prof. Robert H. Richards, head of the Department of Mining Engineering in the Massachusetts Institute of Technology; and together they established a home in the nearby suburb of Jamaica Plain which became not only a model of good house-keeping and healthful living conditions, but also a center of hospitality for the faculty and students of the Institute and for their friends.

Space is not sufficient to tell of the movements of which Mrs. Richards was the originator. The New England Kitchen of Boston, of which she was the founder, was an experiment in serving well-cooked food at low prices. The Rumford Kitchen at the World's Fair in Chicago in 1893 of which she had charge, was the first important effort made in this country to demonstrate to people at large the fact that there is a science underlying nutrition. She was instrumental in founding school lunches and an organizer of other enterprises which had for their object a better utilized food supply.

She was a charter member of the Association of Collegiate Alumnae and also of the Naples Table Association and was connected with many other organizations which have had an important part in opening opportunities for higher education to women. She was back of an important investigation made in Boston of the sanitary conditions of the public school houses.

In 1899, Mrs. Richards with Mr. and Mrs. Melvil Dewey organized the Lake Placid Conference on Home Economics which later became the American Home Economics Association and has brought together into an effective working group the scattered forces which are making for better homes. The journal of the Association was the object of her special interest during the last months of her life.

In this record of Mrs. Richards' life, written by Miss Caroline L. Hunt, there is evidence on every page that it is the outcome of profound admiration and the love of a disciple. This obvious devotion will be easily understood by the thousands of those who are indebted to Mrs. Richards for help, guidance, and encouragement. There is evidence that the writer has held herself under restraint for fear that the value of the narrative may be lost in praise. In spite of this restraint, members of the Home Economics Association who read this straightforward and direct story of a remarkable life will find between the lines the unbounded admiration and gratitude which they share.

The attractive form in which the book appears is due to the publishers, Mr. Frank Whitcomb and Miss Mary Barrows, of the firm of Whitcomb and Barrows, who in the publishers' note acknowledge their indebtedness to Mrs. Richards for "constant and innumerable kindnesses" and who state that "through seven years of development their best business asset was her good will."

The book is illustrated with photogravures, many half-tones, and reproductions of pen-and-ink sketches. Particularly interesting are the portraits of Mrs. Richards. The book will appeal to lovers of biography as well as to those who have a personal or a professional interest in the subject as it will attract young readers who will profit by the message of a life of earnest purpose and remarkable accomplishment.

Home Training Bulletins. The series of Home Training Bulletins issued by Professor McKeever are on the following subjects: No. 1, The Cigarette Smoking Boy; No. 2, Teaching the Boy to Save; No. 3, Training the Girl to Help in the Home; No. 4, Assisting the Boy in the Choice of a Vocation; No. 5, A Better Crop of Boys and Girls; No. 6, Training the Boy to Work; No. 7, Teaching the

Girl to Save. Other contemplated numbers are: Instruction in Regard to Sex; Training for Moral Reliance; Social Companions for the Young; Employment for the Boy During Vacation. Free (2 cents postage each) to all persons who ask for them. One cent each prepaid in quantities for free distribution. Address, Wm. A. McKeever, Manhattan, Kan.

Every pamphlet of this series is sane, practical and sympathetic. Parents will seek in vain for wiser treatment of these important subjects.

Women of Tomorrow. By Willian Hard. Baker Taylor Company, New York.

The five chapters, Love Deferred, Learning for Earning, Learning for Spending, the Wasters and Mothers of the World are reprints of articles that appeared in *Everybody's Magazine* and their journalistic jauntiness of style has not been modified. Those interested in Home Economics acknowledge their debt of gratitude to Mr. Hard for his skill in bringing these subjects to the attention of the average reader.

In Learning for Spending he shows his grasp of the modern understanding of the function of women and the need of training for it. The training of the adult by Correspondence Courses, Home Makers Conferences, Farmers Bulletins and advance courses in colleges he looks on with especial favor because the lessons come at the time when they can be carried forward into action. The Wasters shows with delightful irony how all that is good in a girl may atrophy by relieving her by false kindness "from struggle, from effort, from discipline and from the sorrow of pain that brings the joy of accomplishment."

On Sex Hygiene. Dr. E. B. Lowrey's books on sex hygiene, False Modesty, Confidences, Truth, and Herself are the titles of four books on Sex Hygiene published by Forbes and Company of Chicago which deal with the subject with frankness and yet with delicacy. They have the approval of reputable physicians.

Home Progress. This new journal, still in its first year, is published monthly by Houghton, Mifflin Company of Boston as part of the Home Progress Reading Courses. According to the plan as outlined by the editor there will be in addition to special articles "a series of questions and suggestions intended to bring out the experience of the members on a wide variety of subjects connected with the welfare of children." Letters of enquiry are personally answered. This liberal plan for the home education of the parent seems to be carried out faithfully and with an understanding of how great may be the perplexity of the persons of average intelligence who is being bombarded in popular books and journals by ill-assorted advice on this most important subject.

The editor is Miss Elizabeth McCracken, whose sympathetic studies of the American Child are already familiar to us. Sympathy, indeed, is the keynote of this new venture, the sympathy which brings understanding of the problem and which never degenerates into mawkishness. The books for supplementary reading are admirably chosen.

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